The Planning Act Review Committee

Ontario

Background Paper 3

Municipal Planning and the Natural Environment


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SCOPE OF THE STUDY

1. TERMS OF REFERENCE

On 25 September 1975, the Planning Act Review Committee authorized a two-part study of natural-environment considerations in Ontario's municipal planning. The study was to concentrate on the natural environment, while recognizing that natural and socio-cultural environments interact; and it was to place the municipal level of government in the foreground, with the Province's planning activities, though relevant, as background. Phase I of the study, was to be descriptive and evaluative in nature; Phase II was foreseen as more prescriptive.

Phase I, conducted in the September-November period, overviewed current planning approaches to key natural-environment issues at the municipal level, as reflected in a 36% sample of Official Plans. Phase II, from March to June 1976, examined promising directions for improving Ontario's municipal planning system. It included formulating a concept of planning and municipal management capable of greater sensitivity to environmental considerations. Because the real concern is for the decisions and actions that plans are supposed to guide rather than the plans themselves, municipal planning and management were both considered. Attention was directed to planning's inputs (eg, environmental data bases) as well as its outputs (eg, environmental content of plans and assessment of environmental effects of proposed projects). Also considered were questions concerning the allocation and sharing of responsibilities, for the most promising initiatives suggested, among governments.

The Study's outcome was a 227-page report (of which this is a summary) documenting its findings and recommendations concerning how municipalities in Ontario, through the processes of municipal planning and management, might give greater and more effective attention to the protection, enhancement and restoration of the natural environment.

2. PROBLEMS, ISSUES AND CURRENT APPROACHES

Heightened environmental concern, a phenomenon of the Sixties and Seventies, reflects a growing awareness that environmental deterioration is not just a product of large-scale projects in remote areas such as James Bay or the Mackenzie Valley. Nor is it attributable only to massive application or misapplication of technology, such as the widespread use of DDT or the testing of nuclear weapons. Environments are equally degraded by numerous, incremental and seemingly minor changes which accompany land use and "development", in turn generated by urban industrialization, concentrated population growth and a high-consumption lifestyle. Some observers see urbanization as the main source of current environmental problems:

> ...urbanization, with its concomitant maze of decisions affecting the use, development, maintenance and redevelopment of land, is perhaps the most important determinant of environmental quality, particularly the quality of the urban environment where the vast majority of our citizens live.[1]

The same study, for the United States but applicable in its conclusions to Ontario, goes on to say:

> Most of these decisions are made at the local level...the effective participation of local urban government is crucial but its role is weak, underutilized and poorly understood. Without both a concern for and a capacity to incorporate environmental goals at the local and regional levels within states, a major portion of public policy and its influence on urban decisions will be void of purposeful, systematic and explicit concern for environmental quality.[2]

Urbanization and its implications for environmental quality constitutes a major problem; inevitably it must be addressed at all levels in society. This study examines the problem at the government level closest to home, the municipality. It probes, in some depth, the nature of the concern and the capacity of municipal planners, urban and rural, to deal effectively with environmental issues.

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1. Edward J. Kaiser et al, Promoting Environmental Quality Through Urban Planning and Controls (Washington: U.S. Environmental Protection Agency, 1974), p.31.

2. Ibid., p.32.

Sources of information for the study included:

- A survey of one-third of Ontario Official Plans together with working papers and draft plans for Regional municipalities
- Review of Provincial Ministries' Plan Review Manuals
- Review of Provincial planning and policy frameworks
- Questionnaire survey of Ontario Municipal Planning Directors and Conservation Authority Resource Managers
- One-day workshop attended by municipal and Conservation Authority planners from across Ontario
- Consultation with provincial officials
- Limited sample survey of mayors of Ontario's municipalities
- Review of relevant documentation from other jurisdictions.

The results are presented in three categories: the general nature of the concern for natural environment at the municipal level in Ontario; a description of the content of Official Plans as indicators of both concern and planning approaches; and an analysis of roadblocks to addressing environmental issues through municipal planning. Presented separately are the role of Conservation Authorities and the provincial government as key determinants in the process of municipal planning for the natural environment.

2.1 MUNICIPAL ENVIRONMENTAL CONCERN

The study found that, among Ontario's municipal planners and decision-makers, concern for the natural environment does exist. Many qualifiers accompany this statement, but the concern is there.

During the study the extent and degree of this concern was indicated in a number of ways. Responses to the questionnaire survey of planning and Conservation Authority offices was enthusiastic.[3] Though less than a third of the planners replied, many of those who did so provided detailed and extensive information on environmental problems and possible solutions.

3. 107 questionnaires were distributed (69 Municipal Planning Directors, 38 Conservation Authority Officers); 29% of municipal planners and 26% of Conservation Authority offices replied. Responses averaged three typewritten pages (one extended to nine pages) plus attachments.

More specifically, questions 2 and 3 asked, "Are these [environmental] issues considered important in the planning of your municipality or Conservation Authority area?" and "Are these issues considered important by the elected decision-makers of your municipality?". Only one respondent did not feel that environmental issues were considered important in planning, and of varying importance to decision-makers. Variations among perceived importance to decision-makers relates to the nature of the issues involved; whereas planners attached importance to both general environmental concerns and specific issues, decision-makers tend to consider only some issues to be of concern. "The elected representatives are responsive to discussion of the problems and are generally willing to take action; naturally there is a tendency to pay greater attention to highly visible issues such as annual flooding", noted one respondent. Follow-up attendance at the one-day workshop of planners demonstrated correspondingly strong interest in environmental issues, with emphasis more on the how than the why of planning.[4]

Municipal environmental concern extends over a broad range. The survey of planners indicated five general categories of environmental issues, listed here in the order of frequency cited and elaborated below:

1. Use and conservation of water resources and related features (reported as an issue by 80% of respondents)
2. Protection of natural environment features (55% of respondents)
3. Protection of natural-environment economic resources (25% of respondents)
4. Promotion of air quality (25% of respondents)
5. Preventing and/or mitigating the environmental impact of land use activities (discussed in some aspect by all respondents).

Use and development of water resources and related features refers to rivers, streams, floodplains, wetlands, groundwater, lakes and shorelines. Water resources comprise perhaps the most difficult issue to address. The many societal purposes attached to water necessitate multi-objective planning which exposes conflicts among proposed uses (eg: recreation vs. sewage disposal; wildlife habitat vs. industry), and water resources relate closely

4. The workshop was attended by representatives of 38% of the municipal planning offices and 32% of Conservation Authorities.

to other environmental features such as vegetation, topography, and wildlife, which further complicates planning and implementation.

The main concerns related to water resources are summarized by Table 1:

Table 1	Water Resource Management
Specific Area of Concern	Nature of Concern
rivers/streams	pollution, variable flow particularly reduced flow in summer months thereby limiting recreation and aesthetic appeal
floodplains	flooding and inappropriate development on the floodplain
groundwater	soil subsidence during and after development, alteration of water supplies, loss of aquifer recharge areas
wetlands	disruption of marshland sanctuaries, pollution, filling or drainage, all of which seriously affect the life-support systems for creeks and streams
lakes/shoreline	pollution, carrying capacity unknown, disturbance or loss of fish spawning areas and wildlife habitat, loss of access to recreational resource.

Protection of natural environment features includes forested areas, other vegetation, topography, wildlife, slopes and valley rims. Given the importance of conserving and protecting water resources, it follows that protection of natural environment features is of major concern. Effective watershed management is integrally related to the proper management of forested areas, vegetation, topography and valley rims.[5] Other concerns related to this issue include protection of life and property from environment hazards inherent in steep slopes and some topographical features, and protection of wildlife and natural environment aesthetic features from destructive human interventions.

5. Increasing concern for the impact of development on slopes, valley rims and ravines was reflected in numerous articles appearing in Metropolitan Toronto newspapers last fall; eg, J. Simpson, "Developments on Metro Slopes Spark Conservation Debate," Globe and Mail, 15 November 1975; and J. Dineen, "Money is Needed to Save Metro's Vanishing Valleys", Toronto Star, 6 December 1975.

Table 2 Protection of Natural Environment Features	
Specific Area of Concern	Nature of Concern
water management	Excessive cutting of woodlots; loss of vegetation. Both create the conditions for more rapid snowmelt and run-off conditions and destroy natural reservoirs, thereby increasing the intensity and peaks of spring and summer floods.
hazard areas	Reduction of risk is the main objective but maintenance of natural conditions and aesthetic, particularly along watercourses, are also important.
protection of wildlife and aesthetic features	Excessive cutting of woodlots; loss of vegetation. These in turn create problems of soil erosion by wind and often by water, and reduce wildlife habitat and therefore wildlife population.

Protection and conservation of natural environment economic resources refers particularly to agricultural land and mineral extraction (aggregates, especially). The main point of concern here is loss of economically viable resources through pressure for urban development. Alongside this concern, however, planners recognize that farming operations and pit and quarry operations can have serious implications for environmental quality.

Promotion of air quality focuses on particulate and gaseous pollutants and on noise. Though not often mentioned by respondents, those who did discuss this issue perceived a potential increase in concern with public attention focusing more often on these "nuisances".

Table 3 Promotion of Air Quality	
Specific Area of Concern	Nature of Concern
Air pollution	directed mainly at industries, connection to water quality through fallout.
Noise	generated by road traffic and railway operations; affects not only humans but also wildlife in urban and rural areas.

Underlying all five environmental issues is a key planning problem: preventing and/or mitigating the impact of land use activities and determining trade-offs to be made between environmental protection/conservation and land use development.[6] Land uses and activities of concern include agriculture, subdivision and urban development, summer cottages, rural estates, sewage disposal, sanitary landfill, pits and quarries, and industry generally.

Table 4 Preventing and/or Mitigating Impact of Land Use Activities

Activities	Environmental Impact Problem
Agriculture	stream quality compromised by the location of feedlots and grazing areas close to streams, as well as by run-off of nutrients from fertilizers
Subdivisions Urbanization	loss of significant natural features; excessive cutting of woodlots; drainage and filling of wetlands; increased run-off and erosion into rivers and streams; noise pollution
Cottage development Sewage disposal	pollution of lakes and rivers, exceeding capacity of lakes, disturbance of wildlife, vegetation, fish spawning areas
Sanitary landfill	leachate diffusion into groundwater
Pits and Quarries	possible groundwater changes; "after-use" of abandoned pits, noise
Industry	air and water pollution; noise

The concerns described here emerged from questionnaire responses and discussions with municipal and Conservation Authority planning directors and other staff. To obtain a broader perspective, and to ascertain environmental concerns of municipal decision-makers (who may filter out the concerns of their planners) we turned to adopted Official Plans.

2.2 ENVIRONMENTAL ISSUES IN OFFICIAL PLANS

Official plans are intended to provide legally binding public policies and standards formally adopted as guidelines for the municipality's future development. Plans should reflect the concerns and objectives of the community and provide an explicit account of how those concerns and objectives will be met.

6. For a discussion of impacts, related to the natural environment, from residential, commercial and industrial development, see Dale L. Keyes, Land Development and the Natural Environment: Estimating Impacts (Washington: The Urban Institute, April 1976).

Our sample survey of 36% of Official Plans[7] revealed seven environmental concerns, shown below in the order of frequency in which they appeared:

1. Safeguarding residents and property from environmental hazards such as flooding, soils unstable for foundation purposes, etc. (found in 48% of the sample).
2. Minimizing pollution of land, water and air (in 46% of the sample).
3. Protecting and promoting the aesthetic qualities of the municipality (in 43% of the sample).
4. Managing water resources to protect and conserve municipal water supplies and maintain water quantity and quality (in 20% of the sample).
5. Protecting unique (to the area) and/or irreplaceable natural resources such as wildlife and special tree standards (in 19% of the sample).
6. Protecting agricultural land as a natural resource (in 11% of the sample).
7. Conserving resources such as timber and minerals for purposes of economic production (in 5% of the sample).

As reflected in Official Plans, municipal natural environment concerns are narrowly perceived. Natural environment, to the municipalities surveyed, seemed to be equated with environmental hazards, pollution and aesthetics. As Table 5 indicates, these concerns do not correspond with those expressed by municipal planners, either in content, range or priority.

What explains the inconsistencies shown by Table 5? Official Plans can be expected to lag behind current issues. But the "environment movement" peaked six years ago - ample time for Official Plans to catch up.[8] It would seem that the concern is there, especially on the part of the planners, even though it is possible for them to hold conflicting concerns that take precedence in the crunch (at the early stages of planning it is possible to be "concerned" about a lot of things). Concern is one thing; capacity is another. Does the

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7. The sample included 133 of Ontario's 362 Official Plans; 77% of cities, 60% of boroughs, 23% of towns, 54% of villages, 32% of townships and 50% of counties. The sample was structured to provide adequate geographic coverage, to include case-study municipalities designated by the Planning Act Review Committee, and to take advantage of available documents.

8. 61% of the Official Plans sampled were post-1970, although almost half of these were adopted in the first three years of this period (which means they were prepared earlier); 25% were prepared in the 1965-69 period.

capacity to act on the concern exist? Capacity involves power, money and resources — and know-how, based on know-what. Here is where municipal planning, at the moment, appears weakest. Complex issues involving the protection of environmentally-sensitive and aesthetically-valued areas, prevention of development in areas hazardous to life and property, correction of ecological imbalances relating to human activities and land use — these are problems for which solutions are only beginning to be found, and to which jurisdictional and financial resources have yet to be redirected. At best, Official Plans respond to this reality; they reflect rather than project, follow rather than lead.

Table 5 Comparison of Key Environmental Concerns (nature and ranking)

	Survey of Official Plans	Survey of Municipal Planning Directors
Most frequently mentioned	safety from hazards	water resources management
	minimize pollution	protect n-e features related to water resources, i.e. forests, vegetation,
	protect/promote aesthetics	topography, valley rims
	water resource management	safety from hazards
	protect unique/ irreplaceable n-e resources	protect unique/irreplaceable n-e resources
	protect agricultural land	protect/promote aesthetics
	conserve economic resources	protect agricultural land
		protect extractive minerals
least frequently mentioned		minimize air pollution/noise

Not all Plans lag behind the times, however. A few (approximately 2%) of the more recent Official Plans together with the draft plans for regional municipalities appear to be broadening their approach to encompass a full range of natural environment concerns. Regional municipalities were examined separately because none of the 11 has as yet an approved Official Plan; the majority are still in the draft or discussion paper stage. The results presented below reflect a brief review of the available documentation for 10 of the regional municipalities.[9]

9. Documentation for Haldimand-Norfolk was not available at the time the study was undertaken.

The main finding is this: compared with existing Official Plans, their planning objectives differ from those of other municipalities in two respects. First, regional municipalities tend to place strong emphasis on a broad range of environmental concerns; by comparison, existing Official Plans emphasize two or three objectives and either ignore or give mere token acknowledgement to the remainder. Second, environmental objectives at the regional level reflect different priorities, as indicated by Table 6.

Table 6 A Comparison of Regional and Local Environmental Planning Objectives

Regional Environmental Planning Objectives	Local Official Plan Environmental Objectives
protect/promote aesthetics	safeguard residents/property
protect agricultural land	minimize pollution
protect unique/irreplaceable natural environment resources	protect/promote aesthetics
minimize pollution	water resource management
conserve natural economic resources	protect unique/irreplaceable natural environment resources
water resource management	protect agricultural land
safeguard residents/property	conserve natural economic resources

Regional municipalities stand out in their attempt to develop detailed policies for environmentally-related land use categories. Municipalities usually limit themselves to open space, conservation and hazard lands; only a few have progressed to delineating specific features of the natural environment requiring consideration, and only a few have designated environmental protection areas, sensitive areas or natural resource districts. Regional municipalities, more advanced in this regard, are adopting numerous approaches to the protection and conservation of environmental sites, as shown below.

Table 7	Regional Planning Approaches to Environmental Areas
Regional Municipality	Environmental Protection/Environmentally Sensitive Area
Halton	Put forward Severance Policy Districts in an attempt to develop a detailed rural land use policy. Severance requests will not be considered for approval if located in Conservation Authority regulated lands or in headwater control lands. Severance Policy Districts include: District 1 - prime agricultural land; District 2 - unsuited to agriculture yet may contain environmentally sensitive areas; and District 3 - committed to future development.
Ottawa-Carleton	In addition to designating Conservation and Recreation land use, this document includes policy areas related to Marginal Resource Districts, which are to be maintained in their present state, and Environmental Management Areas which include wildlife, hazard land, forest management, and recreation areas.
York	Attempts to detail environmental protection areas into priority areas such as lands with high capability for dryland recreation, lakes with high capability for swimming, and areas which are critically important to the functioning of the Holland River watershed.
Waterloo	Has delineated and is attempting to detail floodplains, environmentally sensitive areas, and other environmental features including forests containing organic soils and steep slopes. Environmentally sensitive areas include those environmental resources of high value such as rare or endangered species; plant and/or animal associations, and landforms which are unusual or of high quality regionally, provincially or nationally; large, undisturbed natural areas which afford shelter to species intolerant of human disturbance; unique habitats with limited representation in the region; areas with unusually high diversity of plant and animal communities; areas which provide a linking system of forest for wildlife movement; areas serving a vital ecological function such as water recharge; areas with some qualities of uniqueness and rareness of species but which are not outstanding due to reduction of quality by man-made actions.

A factor contributing to this progress: regional municipalities are undertaking in-depth environmental studies of their areas and are attempting to develop the necessary data bases by which to promote specific policies; environmental resources have to be identified before they can be protected.[10] Background environmental studies for existing Official Plans, on the other hand, are generally non-existent or at best superficial.

Emerging regional plans are promising. Two facts dampen their positive potential at this time, however: many have not yet reached the stage of testing the political feasibility of proposed environmental policies; and more importantly, they still must rely heavily on local municipalities to exercise implementing measures such as land use controls.

The question remains: to what extent do these newer plans proposed by regional planners and by a few local municipalities represent an innovation capable of surviving and being implemented to achieve municipal objectives? And do they represent a lead other municipalities could follow? Part of the answer can be found in an examination of the barriers to comprehensive "environmental" planning by Ontario's municipalities, inhibiting its transition from a peripheral to a mainstream activity.

2.3 ADDRESSING NATURAL ENVIRONMENT IN MUNICIPAL PLANNING

The municipal planning process itself seems to filter out environmental concern. Roadblocks to the expression and addressing of environmental concerns in municipal planning exist in the main stages of planning — problem identification, setting of goals and objectives, determining of means, and implementation. These barriers include:

- Lack of adequate concepts, principles, information — fundamentally affecting approaches taken to defining environmental concerns and to setting goals and objectives.
- Concern for feasibility and legal defensibility — limiting the range of means chosen, constraining innovative approaches.

10. Waterloo Region appears to have made the most progress in this respect, with the first stage of a computerized data base in place, based on the approach set out in Derek J. Coleman, An Ecological Input to Regional Planning (University of Waterloo, 1975). Haldimand-Norfolk benefits from the earlier study by Victor Chanasyk, The Haldimand-Norfolk Environmental Appraisal (TEIGA, 1970).

- Role of the council in deciding on and implementing plans.

Concepts/Principles/Information

In the preliminary stages of Official Plan preparation, certain issues tend to be filtered out either because not enough is known about them (either conceptually or factually) or because they are not seen as important or relevant. Examples that follow are supported by statements taken from correspondence with Planning Directors:

- Groundwater: a relevant issue in many jurisdictions. Yet, for the most part, absent from the planner's agenda, for reasons indicated by some respondents:

  > There is no determination as to philosophy or attitude to preserving recharge areas or to maintaining watertable characteristics related to vegetation.
  >
  > Very little is known about the general potential problems so no direct planning action has been taken [11]...groundwater factors are extremely difficult to integrate with normal planning procedure due to lack of information and predictive capability.

- Forest/vegetation management: integrally related to and a necessary component of water resource management (the main current environmental issue among municipal planners) and important to the maintenance of the aesthetic environment of urban areas with vegetation serving as buffer to wind and noise, air purifier, shade, and wildlife habitat. Lack of policy guidelines, however, restrains planning approaches to this aspect of environmental quality.

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11. This information gap was highlighted in a recent study conducted for the Kitchener-Waterloo area:

    > In the central part of Waterloo County, the overburden aquifers are the most important sources of water...Little is known about the continuity of these squifers or the connection between them (i.e. the three types found in the area -- upper, overburden, basal). Most of the water used in the Kitchener-Waterloo area is drawn from wells in the middle (overburden) aquifers; little is known about water quality and quantity in the basal aquifer. Both Kitchener and Waterloo have nearly reached the limits of the developed capacity of their existing, well fields. Relatively little is known either about the potential capacity of the overburden aquifers to yield water or of the existence of significant additional water supplies.

    R.S. Dorney, I.F. MacNaughton, and L.C. Dorney (ed), An Ecological Analysis of the Waterloo-South Wellington Region, University of Waterloo, Division of Environmental Studies, July 1970).

> Preserving of forested areas reaches a question of policy such as preserving forested areas of hardwoods versus deciduous, trees of certain caliper, etc. How much do we interfere? Are we to maintain existing natural environments or to strive to provide for a natural or vegetative support environment to the latter urbanized environment?

- Energy, and its relationship to patterns and kinds of development taking place and necessary conservation measures, received no mention in the Plans surveyed; and it was discussed by only one planner in the questionnaire survey.

- Impact of urbanization: many serious problems are posed by urbanization itself, particularly with respect to rate of loss and damage, runoff, and increased consumption of natural resources (especially energy) to support the urban lifestyle; yet

> The effect of urbanization on the sensitive environmental components (water courses, small creeks and streams) has never been seriously considered by any party.

Inadequate concepts, principles and information also greatly influence the approaches taken to those issues which appear on the planning agenda. Our survey of Official Plans showed that the planner's concept of the environmental characteristics of "land" tends to be weak (it is still seen largely as a commodity), and that the linkages between environmental quality and human activities receives minimal attention.

Environmental Goals and Objectives

When these concepts and principles are translated into goals for development and the natural environment, three basic approaches are taken by municipal planners in Ontario.

The first is to set out broad environmental goal statements in that part of the Plan covering overall purposes and intent. Such statements appeared in 41% of Official Plans surveyed. "Minimizing pollution" and "protecting/promoting aesthetics" were favoured. Inherent conflicts between environmental goals and other goals of the Plan — conflicts such as promoting urban growth vs. maintaining water quality, improving transportation facilities and access vs. minimizing pollution, social equity vs. environmental quality — are seldom

dealt with. Nor are trade-offs made explicit; only 2% of the Plans stated that all other goals in the Plan should attempt to satisfy the environmental goals.

More commonly used are site-specific statements in which environmental objectives are explicitly set out in terms of areas or sites. Often these are land use categories (eg, conservation areas, parks and recreation areas, hazard lands) which also serve as a means for achieving the objectives. Statements of environmental objectives related to specific sites were found in 53% of the Official Plans surveyed, with "safety of property and residents from hazards" and "protecting/promoting aesthetics" appearing most frequently. The categories of environmental sites appearing in Official Plans and the frequency with which explicit environmental objectives are referred to are shown by Table 8.

Table 8 Environmental Land Use Categories

Category of environmental site	% of OPs where category appeared	% of OPs where explicit environmental objectives were stated for the environmental site
Open Space	53	3
Hazard Lands	41	34
Conservation Area	25	15
Env. Protection Areas	12	12
Parks and Recreation	8	6
Natural Resource Districts	4	2
Env. Sensitive Areas	1	1

Two observations can be made here. Differentiation of the environmental characteristics of land seems to be underdeveloped with most Plans employing the familiar classifications: open space, hazard lands and conservation areas. And, specific environmental objectives related to these environmental areas are not often stated, hazard lands and environmental protection areas being exceptions. Over-emphasis on the hazard lands category in itself can be taken to indicate the limited conceptual development of "environmental" planning, a concern expressed by one respondent:

> Our concern is the approach taken in dealing with our natural environment and its inherent characteristics. At the Official Plan level, we find the term "hazard lands", which we have used but which is probably

the wrong terminology, as it immediately invites engineering solution at the micro-level which may or may not be satisfactory when dealing in total with the environment. If we are to adequately deal with the problems of the natural environment, a more global and environmentally sensitive point of view is a must.

The third approach uses activity-oriented statements. The obverse of determining environmental objectives for given sites is to determine the environmental effects and suitability of various land uses. Yet, a low level of attention is given by Plans to the environmental effects of land uses. Of the Plans surveyed only 36% contained statements of environmental objectives which made specific reference to activities occurring in the municipality. Listed in Table 9 are the kinds of activities referred to in statements of environmental objectives and the frequency of appearance in Official Plans:

Table 9	Activities Given Environmental Considerations in Official Plans
Pits and Quarries:	22% of the OP's
Waste disposal:	11% of the OP's
Rural estates:	5% of the OP's
Cottage development:	3% of the OP's
Industry:	3% of the OP's
Residential:	2% of the OP's
Transportation:	1% of the OP's

Given this distribution of activities it follows that minimizing pollution should be the most frequently mentioned environmental objective in relation to specific activities. Next in importance (but well behind pollution) are aesthetics and protecting unique and/or irreplaceable resources; both are usually discussed in relation to rural estates. In general, few activities are discussed in terms of their potential to degrade or damage the environment or specific sites.

Linking Ends and Means

The approach taken to goals and objectives in Official Plans, however, provides only a preliminary indication of the barriers to broader environmental planning at the municipal level. Another area to examine is the kinds of actions and policies employed to deal with local environmental concerns, and the roadblocks to devising effective means of meeting stated environmental goals and objectives.

Ontario municipalities appear to follow two main interrelated approaches to achieving their environmental objectives: land use designations or zoning, and environmental management strategies or policies.

The kinds and frequency of use of environmental land use designations in Official Plans were listed in Table 8. Zoning, as an approach to achieving municipal environmental objectives, has several weaknesses that can be traced in part to the problems already discussed: inadequate concepts, principles and information. Few municipalities employ a differentiated set of environmental land use categories such as environmentally sensitive areas or natural resource districts. For the most part, the intent of the environmental category is left implicit, with its relationship to stated environmental goals unclear; similarly, the environmental suitability of permitted activities is given only cursory attention in the typical Plan. Permitted uses most commonly cited are agriculture, recreation, conservation activities and forestry. Their assumed compatibility with environmental protection objectives has to be seriously questioned, particularly with regard to agriculture and recreation.

All of these deficiencies underline the importance of environmental management strategies and policies which accompany and back up (or ought to) zoning designations. The nine categories of environmental management strategies used by municipalities are shown in Table 10 which lists them in order of frequency found in the Official Plans surveyed. Only three categories are used with any frequency by Ontario municipalities: invoking Conservation Authority regulations, requesting hazard land studies, and applying pollution standards.

Two main problems seem to inhibit the selection and effective utilization of environmental management strategies and policies: feasibility and legal defensibility. The roles of the Conservation Authorities and the Province in promoting (or inhibiting) municipal environmental planning are discussed separately later.

Table 10 Environment Management Strategies in Official Plans

Invoking Conservation Authority Regulations (found in 42% of the sample) to control land use in particularly environmentally significant sites. The majority of municipalities rely on Conservation Authority consent as a means of protecting major drainage systems from pollution.

Requesting environmental studies (found in 39% of the sample) of varying scope, usually part of the hazard lands policy in which the effect of the environment on proposed developments is examined. A few Official Plans also contain policies for assessing the impact of the activity on the environment. Information requested for the redesignation of hazard lands includes existing environment and/or physical hazards, potential impact of the hazards, and mitigating measures required; information required for cottage developments or for developments occurring in environmental protection areas (e.g. wild rice beds, fish spawning grounds) includes suitability of soils for sewage disposal, impact on watertable and quality of lake, impact on vegetation and fish spawning areas, and impact on other environmental protection areas.

Applying pollution standards (found in 29% of the sample), either provincial or municipal, in the regulation of land use activities. Pollution standards often appeared as a broad goal and policy statement or in relation to specific activities such as industrial land use, pit and quarry or other resource extraction activities. Statuatory control, liaison with provincial and other authorities and encouraging sound engineering practices were the main approaches taken.

Encouraging and controlling tree preservation (found in 20% of the sample), usually a policy directed at promoting aesthetic qualities of the environment, and applied most often to rural estate land use. Only a few municipalities invoked this policy with regard to water management.

Relying on municipal or provincial powers to purchase land requiring protection (found in 10% of the sample). A few Plans stated their intent to purchase land in order to protect environmental resources; reference to provincial or CA acquisition also appeared.

Requesting dedications, setbacks and scenic easements (found in 9% of the sample) is usually applied as a policy to river valleys, ravines and other environmentally sensitive or environmental protection areas.

Prohibiting use of particular environmental areas (found in 5% of the sample); usually applied to development proposals occurring in or near river valleys, marshes, or watercourses generally.

Requesting land use studies or plans (found in 5% of the sample) as part of development proposal review. As well, some environmentally-sensitive areas were put in a holding category until detailed plans could be prepared.

Relying on various provincial agencies, e.g. Ministry of Natural Resources, Ministry of the Environment (stated explicitly in 2% of the sample). Usually the concern is pollution of air, land, water; sometimes, however, the impact of the proposed activity on a particular environmentally sensitive site is required to be examined.

Concern For Feasibility

In devising environmental planning and management approaches municipal planning directors indicated four potential problems relating to feasibility: appropriateness of available approaches, financial resources, political feasibility, and intermunicipal cooperation.

Uncertainty surrounding the appropriateness of various planning approaches is the first problem. It reflects the limited available research on the effectiveness of different land use controls; lack of adequate environmental criteria for determining when control and regulation are required; lack of policy guidelines on how to proceed on issues related to environmental protection and conservation (which environmentally-sensitive areas require protection, how many and what kinds of trees should be saved, what is involved in urban wildlife management, what are the possible performance criteria that can be applied to developments, etc.); and conflicting perspectives and lack of firm consensus on how to proceed. One respondent observed:

> The problem [for floodplain protection] is really defining the broad principles and goals for accomplishment of floodplain mapping. There are conflicting attitudes such as increased channelization by Ministry of Natural Resources which increases the run-off and flow as opposed to possible obstructions and permitting temporary flooding, etc.

These difficulties affect both plan preparation and project design/evaluation, particularly in determining appropriate engineering solutions to control run-off and erosion or mitigate serious environmental impacts. The latter have implications regarding the potential effectiveness of the hazard lands/environmental study approach (utilized in 39% of Official Plans), particularly in light of the repeated changes made in the hazard lands program of the Ministry of Natural Resources and its inconsistent criteria and guidelines. Most municipal respondents felt that initially the Province should take responsibility for determining clear baseline environmental land use planning guidelines and policies.

Financial problems are next on the list. Acquisition of environmental sites is seen to be the best and often a necessary approach to environmental protection, given the limitations to zoning:

> Zoning bylaws lack the ability to adequately assure satisfaction of all objectives. For instance, the restrictive zoning of land to conservation or recreation purposes is not acceptable unless backed up by immediate purchase should the owner object. Zoning cannot be used, in itself, to preserve natural features or even to reserve areas for long-range acquisition.

Costs of acquisition, however, present a major barrier for most municipalities. One respondent questioned whether fundamentally acquisition ought to be a problem:

> At the root of the problem is the question: should the public be compensated for these restrictions through acquisition or government assistance...? Should the municipality be 'forced' to buy it (marshes) or should the farmer be 'forced' to protect and realize its values?

Costs involved in conducting the necessary environmental studies to provide data for plan and policy preparation or development proposal reviews are also serious impediments to applied environmental planning.

Political feasibility represents the third problem. The Planning Act gives municipalities very limited powers to prohibit, regulate or otherwise control the use of land in environmentally-valued areas such as those containing significant topographical features, sensitive lands, water source areas, and aquifer recharge areas.[12] Political feasibility considerations also include

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12. Section 35(1)(3) of the Planning Act gives a municipality the power to pass a bylaw "prohibiting the erection of any class or classes of buildings or structures on land that is subject to flooding or on land where, by reason of its rocky, low-lying, marshy or unstable character, the cost of construction of satisfactory waterworks, sewage or drainage facilities is prohibitive." The concern here is clearly not for the natural environment.

    Similarly, the Conservation Authority Act, Section 27, provides that Authorities may make regulations "(e) prohibiting or regulating or requiring the permission of the authority for the construction of any building or structure in or on a pond or swamp or in area susceptible to flooding during a regional storm, and defining regional storms for the purpose of such regulations."

    Both powers are quite limited, even in their application to this one category of Environmental Protection Area.

the reactions and likelihood of support for proposed strategies by Council and the community:

> It will be appreciated that the planners foresee an extreme difficulty in persuading Council, landowners, and the community at large, in changing these two documents [Official Plan and Zoning By-Law] in such a manner that would have the effect of placing more restrictions upon the development of these lands.

The role of the Province in Official Plan review raises a further problem of "political" feasibility: survival, through the review of a draft Plan, of municipal proposals for environmental protection. This difficulty is felt to stem from the perceived pro-development perspective of the Ministry of Housing, reflected in "the emphasis by the current Minister of Housing on removing restrictions to recreational development and on encouraging housing in rural areas" and in "the perennial clause requested by Ministry of Housing in Official Plan land use policies for Open Space areas, Environmental Protection areas or Hazard Lands, inferring that such a designation is only temporary where lands are privately owned, unless there are hazards which cannot be overcome."

Finally, there are the difficulties surrounding the need for intermunicipal co-operation. Environmental systems and processes obviously do not respect political boundaries. For some environmental problems therefore (water management, protection of agricultural lands, etc.), intermunicipal liaison at least, and possibly joint action, will be required. Such cooperation is often difficult to accomplish, as one respondent inferred:

> The municipality's boundaries are so aligned that it must rely on adjacent municipalities to afford the type of environmental and land use protection necessary to maintain the agrarian hinterland ...In this case the machinery to undertake mutual planning is available in the legislation. The absence of a solution to the problem arises from the extent of political jurisdiction and the unwillingness of the disparate communities to find a mutually satisfactory solution.

Legal Defensibility

The second major concern, legal defensibility, rests on the adequacy of existing planning legislation to achieve environmental planning objectives. Related to this issue are municipal jurisdiction and powers for environmental protection.

Differing views exist among municipal planners on the issue of adequacy of the Planning Act. Respondents disagreed mainly over the extent of its adequacy. The majority of respondents (but by no means all of them) felt the Act to be adequate at least with respect to floodplains. Apart from the problem of lack of consensus over the proper approaches to take, the floodplain problem is seen as one of "lack of application of existing tools and approaches." Many municipalities are reluctant to enforce floodplain regulations due to the extent of developed and/or privately owned property that would be affected:[13]

> The major difficulty lies in dealing with partially developed areas or small vacant parcels. In the first instance, blanket development prohibition in such areas would prejudice owners of remnant open parcels and would cast doubt over safety of existing homes. Also, the question of flexibility in permitting expansion or redevelopment arises.

Planners are more concerned with the adequacy of existing planning legislation to deal with protection and conservation of woodlots or other forested areas, trees, environmentally-sensitive areas beyond river valleys, and topographical features, and to prevent agricultural pollution (Table 11).

Table 11 Adequacy of Existing Planning Legislation

Concern	Problem of Adequacy
Woodlots/forested areas trees	Weak protection given by bylaws under the Municipal and Trees Acts. No effective means under existing legislation of precluding destruction in private woodlots or of individual trees, particularly in rural areas where municipal supervision is minimal.
Environmentally-sensitive areas beyond river valleys	Requires special expertise and resources not available to municipalities; and jurisdiction often lies elsewhere.
	Little or no control over landowners and developers who are free to grade their lands, open up roads, drain swamps, relocate streams, put in fill and remove vegetation prior to receiving draft approval of their subdivision or a change in zoning. In fact, some of these works are undertaken after consulting with the Ministry of Environment or Conservation Authorities Branch (M.N.R.) and learning what environmental constraints would need to be overcome in order to gain approval.
Topographical features	Substantial escarpment-like topographical feature exists...high risk that redevelopment and development may occur on these slopes with consequent removal of vegetation cover including a high risk of soil erosion. Protection of these banks is of concern because the existing planning legislation (Official Plan and Zoning Bylaws) do not afford the type of protection felt by planners to be necessary.
Agricultural pollution	Zoning and other municipal action very weak when dealing with agricultural pollution.

13. The problems associated with floodplain management and feasible approaches are currently receiving attention in a study of floodplain management criteria commissioned by Ministry of Housing and Ministry of Natural Resources.

Underlying each concern is the problem of municipal power to purchase environmental areas or to compensate landowners for changes in zoning, and the fundamental issue of the appropriate limits on private property rights with respect to environmental resources.

Role of Council in Implementation

Another barrier to environmental planning at the local level is seen in the role Councils play in the adoption and implementation of Plans. It is obvious that the planners' environmental concerns often do not make it into the approved Official Plan; and that environmental provisions of Plans often are not acted upon.

Generally, the municipal planners surveyed felt that decision-makers at the local level felt environmental issues to be important — a view that conflicted with the results of a parallel survey undertaken of mayors of municipalities.[14] Respondents to that survey (mayors, supported by department heads) were asked to rank the importance of a given set of local issues. Environment came out seventh of eight, after (in order) finance, housing, sewer/water, land use, education, and transportation; only welfare ranked lower. Not surprising, then, was this observation by an Ontario municipal planner: "Council is cautious about spending money for the preservation of natural features or the protection of the natural environment." Low priority for environmental concerns in budgetary allocations at the local level is a difficult problem to overcome, particularly in municipalities which are rapidly growing and are faced with increasing costs and demands for public services and facilities.

What underlies the priority, high or low, given to the natural environment? A narrow perception of "natural environment" and the municipal jurisdiction over it may explain environment's low ranking. Also, there is an increasing tendency to regard natural environment and countryside as synonymous and (to urban Councils) something "out there". Regional governments, which combine urban and rural, appear to give natural environment somewhat higher priority. Finally, municipal Councils may simply reflect the wider societal view which is

14. Reg Lang and Audrey Armour, Urban Environmental Assessment in Canada and the United States (Ottawa: Ministry of State for Urban Affairs, June 1976) Appendix A.8.

ambivalent to environmental concerns: many people profess pro-environmental values but then actual behaviours, directly and indirectly, contribute to anti-environmental results.

All factors considered, it would be prudent to regard the priority given by municipalities to natural environment not as low in an absolute sense but as variables — that is, capable of differing interpretations, and of change.

2.4 ROLE OF CONSERVATION AUTHORITIES IN MUNICIPAL PLANNING

The surveys of Official Plans and municipal planners exposed a certain tendency of municipalities to set aside natural environment concerns on the assumption that Conservation Authorities have and will take responsibility for such concerns.

To some extent this position is valid; in fact, it is part of the motivation underlying the creation of Conservation Authorities. Their mandate for watershed management under the Conservation Authorities Act[15] is broad and comprehensive. Initially their programs focused on soil conservation and reforestation but soon gave major emphasis to flood protection and control (especially after Hurricane Hazel) including land acquisition in river valleys. More recently Conservation Authorities have broadened into the fields of outdoor recreation, conservation education and resource management generally, even though floodplain management remains dominant.[16] Yet the considerable concern municipal planners express for water resource management and protection of natural features related to the watershed (topography, forests, vegetation, etc.) provides an indication that Conservation Authorities experience difficulties in fulfilling this mandate.

Conservation Authority resource managers, in our survey, indicated that several problems combine to limit their agencies' effectiveness:

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15. The Conservation Authorities Act came into effect in 1946. Since that time 38 Conservation Authorities have been established, now covering 482 municipalities (471 local, 11 regional) and most of Ontario's population.

16. This is a generalization, to be interpreted with care. Conservation Authority programs tend to vary according to the particular issues perceived by members of an individual Authority as deserving priority in their area.

1. PREVIOUS PLANNING MISTAKES. In many municipalities development or land purchases for future development have already taken place in floodplains. Enforcement of floodplain regulations to restrict or prohibit future redevelopment and development in such areas often meets with considerable resistance from local Councils, developers and other landowners fearing loss of assessment revenue or financial investments.

2. INADEQUATE FINANCIAL RESOURCES. Acquisition of land for watershed management tends to give priority to floodplain protection; financial limitations restrict acquisition of environmental protection areas beyond the floodplain.

3. CONFLICTS WITH MUNICIPAL BY-LAWS. New methods to protect environmental features are often contrary to existing municipal bylaws or engineering practices. For example, zero lot drainage or on-site retention of stormwater was reported contrary to municipal bylaws which state that all lots must drain to the road allowance and all surface waters must be transferred through the stormwater sewer system.

4. LACK OF CONSULTATIVE PLANNING. Conservation Authorities implement their objectives vis-a-vis local planning mainly through requirements for Authority consent on formal applications for Official Plan and zoning amendments. Resource managers expressed concern that the position of Conservation Authorities with respect to other planning activities was not strong enough and required more explicit attention under the Planning Act. For example, Sec. 33 (4)g. of the Planning Act dealing with the preparation of draft plans of subdivisions, makes only a brief reference to Conservation Authorities, stating that "regard shall be had for the conservation of natural resources and flood control". The Section could be more positive, it is felt, with specific attention drawn to erosion control, water quality and pollution, hazard land protection, sensitive area protection, headwater area protection, and park land conservation. Another example: circulation to the Authorities of

applications for consents and minor variances is not required and often, unless comment is sought voluntarily, Authority comments are possibly only in the late stages of development review. This can create problems, as pointed out by one respondent: "If the Authority's regulations require that no permit be issued for the intended use, the bylaw would have to be objected to and individual investment lost." A final concern relates to applications for building permits. Not only is there no obligation on the part of the municipality to seek Authority comments but as well the municipality cannot legally refuse a building permit on the basis of Authority objectives or regulations.

Limitations Conservation Authorities work under and the "back-off" tendency of municipalities combine to create gaps into which may fall considerable natural environment concerns, and through which undesirable developments can and do slip. Strengthening the Authorities legally and financially is one possible solution. Conservation Authorities can be a powerful force with respect to the natural environments in Ontario, not only in carrying out their own programs but also in influencing municipal planning. But this solution has shortcomings too. First, the Conservation Authority legislative mandate covers only part of the full range of natural environment concerns. And second, Authorities have demonstrated variable and limited public accountability and responsiveness (eg, decisions can be made without public hearings or input, and without appeal). On the other hand, Authorities are less subject to kinds of public pressure Councils feel and, as a result, may be more likely to take "publicly-unpopular" decisions in favour of the natural environment.

These factors deserve consideration in the review, now underway by the provincial government, of the role and operation of Conservation Authorities. It seems likely that they will continue to perform significant specific functions relating to the natural environment, but that the key impetus for environmental planning and management will come from the municipal and provincial levels of government.

2.5 ROLE OF THE PROVINCE CONCERNING MUNICIPAL PLANNING

Municipalities receive their powers from provincial legislation. Obviously, then, the provincial government can play a strong influential and direct interventionist role with regard to municipal planning generally and for the natural environment in particular. Not so readily apparent is the exact nature of the Province's role, how it is applied, and the cause-effect relationships with respect to planning and implementation at the local level.

Three aspects of that role are examined here: the review of municipal plans, amendments and other measures requiring the Minister's approval; the provincial framework of plans and policies bearing on municipal planning; and other activities including subdivision approval.

Provincial Review of Municipal Plans

The most direct influence of the Province on municipal planning is through administration of the Planning Act. The Act empowers municipalities to prepare Official Plans; to pass bylaws restricting the use of land for certain purposes, controlling the building of structures and establishing conditions for development or redevelopment on any lands or of any buildings in the municipality; and, through municipal committees of adjustment or land division committees, to grant consents. The Act itself, however, makes little reference to the environmental considerations that enter into the exercise of those powers, other than the limited reference in Section 35 (cited earlier).

Provincial control over the content of Official Plans and zoning bylaws occurs through application of Ministerial policies and regulations in the review of Official Plans, zoning bylaws, consent policies, and related amendments. Various Ministries are involved.

The Ministry of Housing, given the Minister's approval powers under the Planning Act, exerts the greatest influence on municipal planning. The Ministry's draft "Official Plans Policy Manual" was examined specifically for references to the natural environment (Table 12). Two clear impressions were gained from the brief review of stated Ministry of Housing policies.

Table 12 Ministry of Housing Official Plans Policy Manual

PARKLAND FOR PEOPLE, the Ministry's guide for Official Plan policies on public open space. Natural features mentioned once.

Policy directive concerning PITS AND QUARRIES. Refers only to preserving the scenic beauty and amenity of the area and ensuring no pollution of watercourses by washing and screening operations.

Interim policy guide for ESTATE RESIDENTIAL uses. Indicates they should not be allowed in areas "subject to flooding or erosion, having a steep slope, being swampy, or having organic soil... with poorly drained soils or areas with an excess of water...in soils falling within the first three classes of C.L.I. scale...and which have existing woodland and wildlife habitat which would be detrimentally affected. On the other hand, the next sentence says, "Estate development should be permitted only in areas having interesting topography and tree cover...and are not adversely affected by noise, air pollution or insect infestation. It should be located in proximity to a wooded stream valley, a natural or artificial body of water, special landforms and wooded areas, or on rolling land with varying elevations and vista".

GUIDELINES FOR LAND DIVISION COMMITTEES IN THE PREPARATION OF AN INTERIM LAND SEVERANCE POLICY Protection of resource lands is cited as a policy intent of the Minister's Guidelines. Resource lands include (a) agricultural lands, (b) headwater areas, (c) floodplains, (d) unique biological and geological sites, (e) potential source areas for aggregates, and (f) areas of natural tree cover. The guidelines elaborate somewhat on (a), (e), and (f) only but without reference to the natural environment; (b), (c) and (d) are mentioned again but not explained.

RULES OF PROCEDURE - CONSENT APPLICATIONS, revised August 1975. Make only brief references to environmental considerations; requiring mandatory consultation with the Niagara Escarpment Commission; submission of information pertaining to land that is swampy, subject to flooding, seasonal wetness or erosion; nature of existing adjacent land use; and a map showing the location of all natural and artificial features including buildings, railways, pipelines, highways, watercourses, drainage ditches, banks, slopes of land, swamps, wooded areas, wells and septic tile fields.

the UDIRA policy (URBAN DEVELOPMENT IN RURAL AREAS) first articulated by the Minister of Municipal Affairs in June 1966 and reconfirmed in February 1968 and May 1975, aims at ensuring that year-round urban development "will not occur in a rural municipality until that municipality has proven itself capable of handling the physical, financial and social consequences of such growth." Environmental effects are not mentioned; the nearest thing to a stated natural environment motive underlining the UDIRA policy is reference to urban sprawl "marring the landscape".

GUIDELINES FOR STAFF EVALUATION OF A COMPREHENSIVE RESTRICTED AREA (ZONING) BYLAW. (November 1974). Reference is made to only Hazard land zones for which "the Land Use Coordination Branch of Ministry of Natural Resources should be requested to comment."

GUIDELINES FOR DEVELOPMENT CONTROL (SITE PLAN CONTROL). THE PLANNING ACT, SECTION 35a. No mention is made of the natural environment.

SEASONAL RESIDENTIAL CONVERSION, (August 1974). Makes no reference to natural environment matters. The suggested criteria for conversion of cottage areas and buildings for permanent residential use indicate, as seventh of seven criteria, that "cumulative effect of permanent residences should be unlikely to result in environmental pollution or degradation".

GUIDELINES FOR STAFF ON MINISTER'S ZONING ORDER AMENDMENTS. (June 1975) does not refer to natural environment concerns. Provision is made, however, to circulate applications to various Ministries, including Environment and Natural Resources, for approval.

The MNR paper, ENVIRONMENTAL PROTECTION AREAS (December 1973), is included in the Policy Manual, without comment.

The recent draft document, REGIONAL OFFICIAL PLANS: GUIDELINES ON FORM AND CONTENT (June 1975), makes reference to "natural resources protection, eg. minerals and agriculture" as well as "mineral deposits, forests, etc." and "environmental and cultural factors which influence settlement patterns" as studies which may be included in the planned inventory. Later, in a discussion of the preferred subject matter of a Regional Official, these headings are suggested in this order: Settlement Pattern; Housing; Industry; Commercial and Office; Transportation; Natural Resources (specific reference only to policies for aggregate and mineral extraction and policies on forestry and lakeshore); Agriculture; Environmental Protection Areas (references only to policies for High Hazard, Low Hazard, and Sensitive Areas, despite the fact that MNR, in defining such areas goes well beyond hazard lands); Recreation and Leisure (reference to but no definition of "Conservation Areas"); Social and Community Services; Education; Utility Services; and Implementation.

In its explanation of the ONTARIO HOUSING ACTION PROGRAM (1974), the Ministry's reference to natural environment is restricted to: "the supply of serviced land has been restricted by slow development control procedures, by increasing environmental controls (emphasis added), and by an inability to finance the services of new housing development." In an eight-item list of policies and procedures that will be followed, these three are included: 1. permission for limiting overloading of sewage plants, and for septic tanks and pre-sewering facilities for a short, fixed period and where only minimum environmental damage would occur; 2. inclusion of housing factors in environmental studies undertaken by MoE; 3. modified criteria for floodplains and hazard lands so that development decisions are based upon hazard to life rather than nuisance to property.

GUIDELINES ON THE DESIGN OF HISTORICAL CONSERVATION DISTRICTS (December 1974) deals mainly with buildings. There is no mention of natural environment although reference is made to the possibility of a District having "other important physical or environmental or aesthetic characteristics which in themselves do not constitute sufficient grounds for the designation of a District but which lend support in evaluating the criteria for designation".

First, the Ministry's criteria for review of municipal plans give little attention to the natural environment. Consents policy exemplifies this in attention to environmental concerns. Consents — approval to sever or divide land — represents an important policy area for the Province in relation to the natural environment and resource-industry fields such as agriculture, forestry and mineral extraction which can be adversely affected by fragmentation of land ownership and its use for non-resource purposes. The problem appears massive. In parts of the Toronto-Centred Region, about as many lots are being created every year by severance as by registered plans of subdivision.[17] In May 1975, the Minister's "Guidelines for Land Division Committees in the Preparation of an Interim Land Severance Policy" (Table 12) was distributed to 38 Land Division Committees (included 27 Counties and 11 Regional Municipalities without Official Plans). The Land Division Committees, using the Guidelines, were to prepare policy statements by November 1975. To date, only eight Land Division Committees have submitted consent policy statements, two of which have been endorsed. The importance of this policy field was re-acknowledged recently;[18] yet no corrective action by the Province appears underway or forthcoming.

The second impression is this: the Ministry of Housing tends to treat natural environment considerations as the business of other Ministries, notably Environment and Natural Resources and, with respect to agriculture, the Ministry of Agriculture and Food. The implications of this approach were explored through a review of the policies of these three Ministries regarding their involvement in Official Plan preparation and review.

The Ministry of the Environment has a draft manual containing policies for its review of Official Plans, zoning bylaws, subdivision plans and severances.

17. COLUC Task Force, Report to the Advisory Committee on Urban and Regional Planning, of the Central Ontario Lakeshore Urban Complex Task Force (TEIGA, Dec. 1974), p.36.

18. The Province's Design for Development: Toronto-Centred Region Program Statement, 1976, states: "Much valuable [agricultural] acreage has been taken out of production as a result of demand for rural land."

The Ministry's goals and objectives refer to:

> "incorporating necessary environmental safeguards through direct involvement in the coordination of the Provincial Land Use Plan" [which doesn't exist];
>
> ensuring "proper control over the emission of contaminants into the natural environment for the purpose of achieving and/or maintaining pre-determined standards of quality";
>
> fostering "improved management of waste and water to achieve a more efficient use of natural and material resources";
>
> developing "specialized techniques for the restoration and enhancement of environmental quality".

The objective of the Land Use Coordination and Special Studies Section is "to ensure that the necessary environmental safeguards are incorporated into the land use policies and programs of all levels of government and the private sector." To assist in carrying out this task "an extensive (40 items) list of points to be considered in a review" has been prepared. Covering such concerns as air quality (pollution, odours), noise and vibration, sewage (municipal or industrial as well as private), hauled-away waste (liquid or solid) and water quality/quantity. Direct references to the natural environment include:

- Effect of development on air quality [although no hint is given as to how to answer the stated question "What effect will the proposed land use have on air quality?"].
- Adequate distances of private sewage disposal to watercourses, lakes; suitability of soil conditions, water table, topography and drainage for sub-surface sewage disposal.
- Effect of development on water quality.
- Need for environmental impact studies of effects of storm runoff to be considered.
- Effect on land (pollution of aquifers).
- Under "General", consideration to be given to "fragile ecosystems"; erosion effects if vegetation cover to be removed; alternative to streams; effect of increased storm runoff on streams, flooding and pollution; and compatibility of "natural ecological systems" with proposed development.

Under "Policy", the Ministry's role is headlined, "Guarantor of Environmental Quality". The Policy Manual, however, recognized the Ministry's limitations with respect to Official Plan and related reviews: "It should be realized that as far as land use is concerned the Ministry acts in an advisory capacity only and that other government objectives may conflict with ours, eg. housing, industrial development." On the other hand, the Ministry, under the Ontario Water Resources Act and the Environmental Protection Act, has direct responsibility for formal approval of water and sewage works and systems and extensions thereto, and for approval of waste disposal sites and systems.

The Ministry of Natural Resources has a lengthy "Plan Review Handbook", "which provides the District and Regional Staff with appropriate directives for reviewing development proposals". Its guidelines are more specific than any others encountered. For example:

> It is undesirable for development to occur on land presently allocated to the future production of the target of 9.1 million cunits of wood and fibre.
>
> It is undesirable for development to restrict the production of commercial fishing, fur and wild rice in designated areas.
>
> It is undesirable for development to occur on areas of high capability for aquaculture.
>
> It is undesirable for development to occur where it is likely to have adverse impacts on fish or fish habitat . . . on wildlife or wildlife habitat . . . including unique floral and faunal associations . . . areas of present or potential high-quality wildlife oriented recreation.
>
> It is undesirable for development to occur where it is likely to have an adverse impact on conservation of the natural environment.
>
> It is undesirable for development to occur of the type and degree that's beyond the potential of the natural features to sustain . . . to occur on designated sensitive areas . . . to occur on or near erodable shorelines . . . to occur of the type and degree that would cause irreparable damage to the natural environment (reference to separate Environmental Quality Guidelines).

The Ministry, however, frankly acknowledges that "to meet a higher order of government objectives, such as housing, certain developments that conflict with the achievement of our objectives will inevitably be approved".

The Ministry of Natural Resources has prepared two papers that have been influential with respect to the natural environment in municipal planning. Environmental Protection Areas, December 1973, makes a distinction between

> two major aspects of the responsibility of the Ministry of Natural Resources to maintain a quality environment: (1) the definition of areas which have physical limitations for development; and (2) the definition of environments which are sensitive to development or use.

Taken together these are called "environmental protection areas". The former are termed Hazard Lands, ie., "all lands having inherent physical/environmental hazards such as poor drainage, organic soils, flood susceptibility, erosion, steep slopes, and other physical limitations to development". Two categories of hazards are recognized: High, with no development permitted; and Low, where certain types of development may occur under special conditions. The latter are termed Sensitive Areas, ie., "areas of land and/or water which provide certain positive values to the public and the environment". Four categories are recognized: Earth Sciences, Life Sciences, Representative Environments, and Historical, Cultural or Archeological Sites. Policy guidelines for both hazard lands and sensitive areas are included.

The second MNR paper, Hazard Lands, June 1975, summarizes progress in defining and mapping hazard lands begun by MNR in late 1972, and updates policy and procedures. Hazard lands are defined as those lands which "possess physical characteristics which could cause severe property damage or loss of life if developed upon". Four categories are used: susceptibility to flooding (watersheds larger than 320 acres require definition of floodlines); susceptibility to erosion; instability; and other conditions (eg. uncapped abandoned gas and oil wells). Detailed policy guidelines are prescribed.

As the Official Plan survey results indicated, the Ministry of Natural Resources' Environmental Protection Areas and Hazard Lands papers have had an impact on municipal planning. Most municipalities, however, have been far more inclined to adopt the Ministry's December 1973 suggested approach to hazard lands than they are to use sensitive areas. Municipal policy statements on hazard lands are often identical, word-for-word, to the MNR suggested policies — which opens up some questions concerning municipal commitment and the extent to which Plans are merely a matter of form (municipalities including whatever

is needed to receive provincial approval in order that they may receive land use control). Pragmatic planners learn which words are acceptable. Our survey of Official Plans in Ministry of Housing files revealed cases where municipal initiatives to expand MNR suggested hazard lands policies to suit the local context were revised to conform to a standardized format. Such action can easily stifle local initiative and municipal commitment to the approved policy.

The Ministry of Agriculture and Food, in September 1974, established a Food Land Development Branch. The Ministry at that time indicated:

> This Branch will serve all those matters within the Ministry involving land use. It will promote our policy, as a Ministry, of retaining in food production, wherever possible and practical, agricultural lands which have a high capability for this use [including all those lands in Classes 1, 2, 3 and 4 as defined in the Canada Land Inventory].

The new Branch gets involved in review of Official Plans, consents and severances; and the Ministry's field staff often have an involvement in the preparation of plans in non-urban areas. Guidelines used for these purposes, eg, "O.M.A.F. Guidelines for Reviewing Plans of Subdivision" (March 1975), focus on agricultural activity but make no reference to the natural environment. Use is made of the Agricultural Code of Practice for Ontario, recently revised by a joint committee of Ministry of Agriculture and Food, Ministry of Housing, and Ministry of Environment. Consideration was given to air and water pollution and the nuisance function of odour, with the primary environmental emphasis on pollution from manure storage together with handling and disposal of dead animals. Main changes to the Code as a result of the revision include more complete information on water pollution control and siting recommendations. A special set of formulae has been established and to determine "minimum distance separation".[19] The Ministry also has the potential, under the new Drainage Act 1975, to take on a more active environmental role; the Act provides for environmental appraisal of proposed drainage actions by farmers and others.

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19. Conversation with Howard Nodwell, Associate Director, Extension Branch, Ministry of Agriculture and Food, May 26, 1976.

On the other hand the Province recently shifted responsibility for preservation of agricultural land to the municipal level,[20] a tactic which is likely to seriously constrain any potential directive role the Ministry of Agriculture and Food might have taken to protect and conserve Ontario's foodlands.[21]

Summarizing the role of the various Ministries with respect to review of municipal plans affecting the natural environment: the key Ministry, Housing, appears to give natural environment low priority. Those concerns are to be protected by MNR and MOE. It is questionable whether these Ministries are able to exert sufficiently strong influence in this regard, and whether their concerns (eg, emphasizing resource management/development and pollution control) are sufficiently wide to encompass the complexity of natural environment problems and issues.

Provincial Planning and Policy Frameworks

Provincial plans and policies are the context within which municipalities do their planning — in theory at least. The theory applies equally to provincial Ministries for example, MNR policy guidelines for Official Plan review explicitly assume that the Design for Development program "will articulate provincial policy to subordinate levels."

That program, first spelled out in a White Paper in Spring 1966, acknowledged that "the Provincial Government has the responsibility to carry out and give direction to regional land use and economic development planning". Regional land use plans, to include environmental as well as economic considerations, were to be the framework for municipal plans. Clearly, the Ministry of Treasury, Economics and Intergovernmental Affairs, responsible for the Design for Development Program which initiated province-wide planning on a regional basis ten years ago, plays (or ought to play) a vital role in municipal planning generally and with respect to the natural environment in particular.

20. Ministry of Agriculture and Food, Strategy for Ontario Farmland, March 1976, pg.10-11.

21. For a discussion of the key issues see Ontario Institute of Agrologists, Foodland, Preservation or Starvation, June 1975.

There are indications that this role has yet to be fully performed. Of the five Ministries examined, only TEIGA had no guidelines for its review of Official Plans. In fact, it would appear that such review is irregular and at the discretion of the Ministry of Housing — which raises the question of the extent to which municipal plans are being prepared within the intended provincial-regional frameworks. Reviews that do occur are based on Design for Development plans (only the Toronto-Centred Region and the Northwestern Region have such "plans", a draft strategy proposal for Northeastern Ontario was released for discussion, March 1976) as well as other regional planning reports and recent task Force reports or pre-report guidelines.

Table 13 PROVINCIAL PLANNING POLICIES AND FRAMEWORKS

DESIGN FOR DEVELOPMENT: TORONTO-CENTRED REGION (1970), reaffirmed as Provincial Policy March 1976 in Toronto-Centred Region Program Statement. Lists among 12 goals: to preserve the unique attributes of the regional landscape, to minimize the urban use of productive agricultural land, and to minimize pollution of water and atmosphere. Problems of loss of recreational and agricultural land, and pollution are attributed mainly to "unstructured sprawl"; thus the focus of the policy is on the allocation of growth within the region. The TCR is a general policy statement, and apart from briefly defining three broad development zones (Zone II is assigned an open space character for recreational and agricultural land conservation), the environmental issues and implications related to urban growth in the TCR are dealt with superficially.

COLUC TASK FORCE REPORT, 1974 recognized the need to establish a "positive [provincial] policy that protects, conserves, and where necessary improves and increases the products and amenities of the rural resource base"; and to establish Provincial "imperatives" and "priority and trade-off rules". The report, however, like the TCR report, is a general statement delineating "a spatial framework for elaboration of strategies and policy and program guidelines"; but, unlike the TCR, it has no policy-commitment status. Within its frame of reference a broad range of environmental concerns were defined; elaboration of policies and strategies for dealing with these concerns are left to further study. The concerns included protection of agricultural land (three areas of agricultural land representing the extent of future urban development were outlined conceptually); conservation of natural environment resources such as forests, minerals, fishery and wildlife, recreation and amenity; and recognition of environmental protection areas (as defined by Ministry of Natural Resources).

INTERIM PLANNING GUIDELINES, NORTHUMBERLAND AREA TASK FORCE, 1974, gives 'Environment' a special section but limits its concerns to two: "to minimize pollution of water, air and land; and to conserve and improve the natural physical features of the area (which include country characteristics and areas of natural beauty). Strategies suggested are to prohibit development on hazard lands or floodplains, together with the preservation of wildlife habitats.

SIMCOE-GEORGIAN AREA TASK FORCE DEVELOPMENT STRATEGY, 1976, provides a more in-depth examination and approach to the region's environmental concerns than most of the TCR-related reports. Some of the objectives underlying the multicentred development concept for the area include removal of pressure from agricultural or rural areas through provision of adequate lands for urban development around existing centres; and protection of the environment, in particular the Nottawasaga Watershed, the Minesing Swamp and Lake Simcoe. In developing a strategy for growth consideration was given to effects of the allocation and rate of development on water systems (carrying capacity) and environmentally sensitive areas (forests, major swamps, banks). Part of the strategy also calls for ongoing monitoring of environmentally-sensitive areas especially Lake Simcoe, and Nottawasaga-Minesing system.

DESIGN FOR DEVELOPMENT: NORTHWESTERN ONTARIO REGION, PHASE 2: POLICY RECOMMENDATIONS, 1970, lists as its Community and Regional Environment Objectives: to improve water and sewage treatment facilities; to reduce air and water pollution; to conserve prime recreation areas and fish and wildlife; to conserve prime forest resources; to prepare urban and rural land use plans; and to concentrate urbanization in selected centres. Strategies required to deal with the area's environmental concerns were only minimally discussed, however; the main strategy recommendations include intensifying replantings by the Department of Lands and Forests, and intensifying measures to prevent and reduce air and water pollution.

DESIGN FOR DEVELOPMENT: NORTHEASTERN REGIONAL STRATEGY, A PROPOSED STRATEGY, 1976. The report is, again, a general policy statement. Environmental concerns are incorporated into the Resource Base Strategy with the general guidelines that "regional resource policies, while encouraging development of natural resources, should be consistent with environmental constraints". Environmental constraints, however, are not discussed. The main recommendations of the report with regard to environmental concerns are to prepare a comprehensive water and land use plan which takes into consideration the distribution and potential use of mineral, timber, recreational and agricultural resources; and to intensify efforts to prevent and remedy environmental pollution.

Furthermore, in the majority of reports being prepared under the Design for Development Program to date (Table 13) environmental concerns have not received much attention. For the most part, the issues — basically protection of agricultural and recreation land, with pollution given cursory attention — are presented superficially with marginal in-depth examination as to the nature and degree of concern, and little analysis of the range, strategies and policies required to deal with them.

On the other hand, the Rural and Resources Planning section of TEIGA's Regional Planning Branch has been actively engaged in developing the natural environment/resources component[22] of the long-awaited provincial planning framework (a proposed White Paper, the so-called Provincial Plan). It remains to be seen how influential this work will be; so far the signs are not hopeful. An indication of the kind of environmental content that could be expected is seen in the "Agricultural Resources and Recreation" section of the recent COLUC report;[23] natural environment concerns receive considerable emphasis in this report (clearly not a statement of government policy) reflected in statements such as:

> It is imperative that the Province delineate a positive policy that protects, conserves and where necessary improves and increases the products and amenities of the rural resource base.
>
> Both provincial policies and provincially approved municipal Official Plans reflect an urban bias exhibiting little concern for rural and resource priorities.
>
> The absence of mandatory provincial imperatives that would cut across more local concerns has resulted in an inconsistent patchwork approach to planning for natural resources...wherever there are potential conflicts of allocation of provincially significant natural resources, the Province must establish the priority and trade-off rules.

While there are some signs, therefore, that regional and province-wide level concern for the natural environment (lumped together with rural and resource development) is on the increase, the provincial influence on municipal plans through its own plans does not appear to be significant at this time.

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22. We perused a confidential working paper, Concepts and Guidelines for Policy in the Natural Resources, Rural and Environmental Fields (April 1975 onward). Indications are that recent reorganization of TEIGA de-emphasized the work of the RRP section.

23. COLUC, ibid., p.35-41.

Other Provincial Influences on Municipal Planning

The Province has numerous other ways of influencing municipal "environmental" planning (see Table 14):

- legislation other than that already cited

  subdivision approval function

- management of Crown lands and de facto planning control in unorganized territories

- creation by the legislature of agencies specially empowered to protect the natural environment

- special projects such as the Parkway Belt

  creation of new towns

- Provincial image as "Guarantor of the Environment".

The Province, through the Ministry of the Environment, has one additional and potentially powerful tool in its new Environmental Assessment Act, soon to be proclaimed. The Act provides for the preparation of environmental assessments for designated actions, both public and private, prior to commitment. "Environment" is broadly defined to include natural environment, social, economic and cultural conditions. Initially, the Act is to apply to selected actions taken by proponent provincial Ministries and agencies; but eventually — the target is 1976 — it is also to be applied to municipalities and the private sector. The outcome has considerable significance for municipal planning and, therefore, is discussed further in Section 3 which presents promising directions for achieving improvements in the municipal approach to natural environment.

Table 14 Other Provincial Influences on Municipal Planning

OTHER LEGISLATION: Environmental Protection Act, the Wilderness Areas Act (land may be set aside as a wilderness area for the preservation of the area in its natural state), the Trees Act (giving municipalities the power to regulate the destruction of trees), the Pits and Quarries Control Act (currently being revised by a Working Party), the Endangered Special Act, the Public Lands Act, and so on.

SUBDIVISION APPROVAL FUNCTION: Under the Planning Act the Minister of Housing has approval powers for subdivision development. Environmental criteria which enter into the subdivision review process include: for cottage developments — suitability of water for contact recreation, impact of development on sport fishing (loss of spawning areas, nutrient input), suitability for septic tanks; for rural areas — suitability for septic tanks, groundwater supply, hazard lands, dumping and removal of vegetation; fur urban areas — required setbacks from water courses, hazard lands, capacity of sewage treatment plant or sewage lagoon, noise. The Ministry of Environment, Ministry of Natural Resources and Ministry of Transportation and Communication are consulted during the review. The Ministry of Agriculture and Food is consulted only if the municipality is without an Official Plan.

MANAGEMENT OF CROWN LANDS AND DE FACTO PLANNING CONTROL IN UNORGANIZED TERRITORY: The Ministry of Natural Resources is custodian of Crown Land in Ontario, exerting control through its responsibilities under the Public Lands Act. A Strategic Land Use Plan,[24] which will state in broad and comprehensive terms how MNR will use or influence the use of land in Ontario, is currently being prepared.

CREATION BY THE LEGISLATURE OF AGENCIES SPECIALLY EMPOWERED TO PROTECT THE NATURAL ENVIRONMENT: A prime example is the Niagara Escarpment Commission which has as its goal "to maintain the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment and to ensure only such development occurs as is compatible with that natural environment". Work on the master plan for the escarpment is still underway.

SPECIAL PROJECTS SUCH AS THE PARKWAY BELT: which cuts across various jurisdictions and has natural environment as one of numerous concerns.

CREATION OF NEW TOWNS: e.g. Pickering and Townsend, which directly affect the natural environment and municipal planning. Environmental analysis to determine suitability for development plays an important role in the provincial planning of new towns, providing a testing ground for new techniques which can be generally incorporated into municipal planning.[25]

THE IMAGE THE PROVINCE CREATES OF THE PROVINCIAL GOVERNMENT AS THE "GUARANTOR OF THE ENVIRONMENT": This may give people the impression (perhaps intentionally) that natural environment concerns are being taken care of by their government, i.e. the average citizen can continue with present levels of consumption and other fundamentally destructive practices without further concern; municipalities similarly have the opportunity to abdicate their environmental responsibilities to the Province. Although this may be overstated, in its simplest form the message could well be received and interpreted this way.

24. The Strategic Land Use Plan is being prepared in two parts. The first part is the plan for the Province of Ontario as a whole; the second part will consist of three separate plans for each of three planning regions — Northwestern, Northeastern, and Southern Ontario. It is not clear how MNR's planning program is to mesh with the natural environment/resources component of the provincial plan.

25. For example, see PlanTown Consultants Ltd., The North Pickering Project: Environmental Planning, An Approach to Environmental Analysis (Ontario Ministry of Housing, Oct. 1974).

3. DIRECTIONS FOR IMPROVEMENT

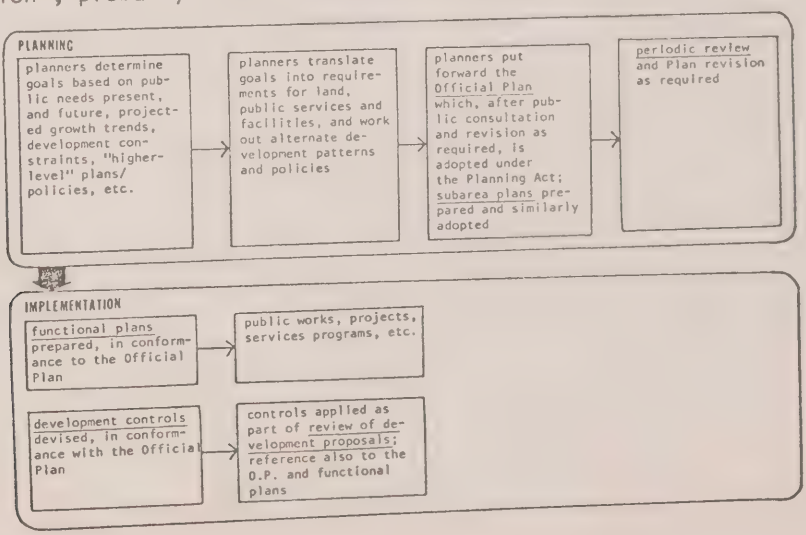
From the previous Section, describing municipal planning as it is with respect to the natural environment in Ontario, this Section preceeds to discuss planning as we feel it ought to be and then planning as it could be, considering various constraints affecting the feasibility of our proposals. Making the transition from what-is to what-could-be involves changes in the way planning and management are conducted at the municipal level; and changes in the role of the Province with respect to municipal planning, including the provincial-municipal relationship affecting local initiatives directed toward the natural environment.

3.1 THE MUNICIPAL LEVEL

As background to considering how to improve municipal planning with respect to the natural environment, it is necessary to examine the planning process itself, for two reasons. First, the way planning is done, not merely what is done, can filter out environmental concerns which then tend to get lost somewhere between planning and implementation. And second, the extent to which natural environment concerns can be addressed through municipal planning is questionable. At stake is whether the Official Plan is the appropriate instrument in this regard, considering that the issue is to improve the effects of decisions relating to the natural environment more so than to improve the decisions themselves or the plans that precede them.

The Municipal Planning Process

In simplified form, the process of municipal "planning", as distinct from "implementation", probably looks like this:



Such planning proceeds from ends to means more or less in a linear sequence. Broad overall goals of the municipality, it is felt, are best served by expressing them as more specific policies in an officially-adopted Plan which then uses land, seen as the platform for all human activity, as the key integrator to coordinate the various forces determining the community's development. Policies (broad guiding decisions that apply to classes of action expected to recur in the future) and land use regulations (notably zoning) are the two main forms of "control" employed to ensure that implementing actions taken by the municipality and others will serve the Plan's stated goals.

This is how municipal planning is supposed to work. Indications are that it seldom does. Goals play a marginal, almost ritualistic role in the real world of planning, explicit relationships between stated ends and feasible means are often not spelled out in the Plan,[26] municipal planning gives little attention to evaluation and monitoring, and few plans are regularly subjected to major review. An earlier report laid it on the line clearly:

> In terms of content, no municipal plans produced to date in Ontario seriously address social or economic questions. None show any evidence that the proposals contained in the plan have been tested, in a systematic way, against the municipality's ability to implement. Physical matters usually make up the total substance of municipal official plans, and for many, the content is narrowly focused on the distribution of land uses. References are often lacking to such elementary matters as hard services and to community structure. In many cases where it would have been appropriate, the plans suggest no staging or sequence to municipal actions.
>
> In consequence, many plans afford little guidance to public bodies in deciding on the size and priorities for schools and public works of various kinds. In such cases, the plan is useful only as the most rudimentary of guidelines in assessing the land use aspects of development applications...
>
> After twenty-five years of their use it cannot be said that a thoroughly satisfactory official plan has been produced in any municipality in Ontario.[27]

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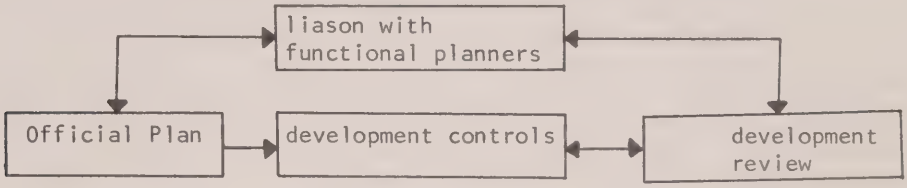
26. For example, see R.S. Lang and J.E. Page, Goals in Official Plans (Metro Toronto Planning Board, Dec. 1973).

27. Subject to Approval: A Review of Municipal Planning in Ontario (Ontario Economic Council, 1973), Pages 54 - 58.

In light of these criticisms it would seem that a diagram of the municipal planning process closer to reality would look something like this:



Our survey of Official Plans suggests that even this limited three-component planning process is seriously deficient in reference to the natural environment. First, Official Plans are weak in content, narrowly interpreting natural environment as safety of residents and property, pollution control and aesthetics. Second, development controls are weak, both in the attention they give and the degree of protection they afford to the natural environment; the most popular controls, in floodplains, exhibit serious deficiences with resepct to data and jurisdiction. Finally, the linkage between plans and implementing measures; usually missing is the necessary linkage between an environmentally-oriented planning goal (such as preserving a unique habitat) and the means to achieve it. A senior Ontario civil servant put it this way:

> At the risk of incurring the wrath of many of my colleagues in the urban and regional planning profession, as well as those on planning boards, I must say quite emphatically that we have failed miserably to give due regard to the physical and environmental framework within which land use development occurs. It is common to see full scale urban development proposed for flood prone areas, swamps, ravines or unstable soils and slopes. In the past, some token recognition has been given to these areas by designating them as Open Space or Conservation. Legal interpretation through time, however, has tended to destroy even this token recognition of physical constraints on development.28

What explains the alleged failure of official plans, especially with respect to the natural environment? Practicing municipal planners point, with justification, to problems of limited legal jurisdiction, financial resources, data, staff and time. But the problems go deeper than that, to the centre of the planning process itself. Kaiser, in a 1972 study of U.S. local and metropolitan planning agencies, concluded that the planner has an urban bias which leads him

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28. V.W. Rudik, "Erosion and the Planning Process" A Conference on Erosion - Causes, Effects, Controls (Conservation Council of Ontario et al, 1972) p.84.

to see the natural environment, and countryside in general, as a reservoir for future urban development. Added to that is the planner's "comprehensive" approach which, while it may welcome environmental factors as inputs to the Plan, seeks balance among conflicting multiple objectives — and, therefore, is reluctant to give undue consideration to environmental or any other single set of factors or interests.[29]

We do not argue against a comprehensive approach to municipal planning and management; in fact, "environment" itself is fundamentally a comprehensive (in the sense of holistic) concept. The problem lies more in the practicing planner's interpretations of the role of the "comprehensive" planner and his Official Plan. Planning, to the municipal planner, tends to mean the preparation and implementation of the Official Plan and its accompanying controls. The planner relies heavily on the validity of the Plan and, therefore, on the inputs to it (eg, data, predictions) as well as on development controls to achieve the Plan's ends. Land use is central to this concept of planning; the relationship of land to other "integrators", such as money (the municipal budget), is often slight. The planner intends that functional plans will be prepared and implemented within the Official Plan framework but he seldom possesses real power to make this happen. He is able, however, to exercise considerable influence over private development through control measures such

29. Kaiser, ibid. (pages 46, 81, 105), found:

> Most master plans take a cursory look at the natural environment and superficially discuss the interface between the natural and man-made environment. Natural environment systems have been seen as recipients of development, and the only stated environmental criterion was that this development meet some nebulous standard of human toleration.
>
> Environmental planning, to local and metropolitan planning agencies, is interpreted as the integration of man-made and natural systems. This interpretation suggests an inclination towards searching for a balance among multiple objectives, only some of which are environmental, and a disinclination to give up the traditional bias toward urban values altogether.
>
> Local planners are saying that they are adding environmental factors and goals to the list of other factors in this land use planning program; but not establishing specific environmental planning approaches separate from their already established planning values and activities.

as zoning under the Planning Act. The Official Plan, then, comprises the prime set of criteria for judging development proposals. These same proposals (reflecting narrow sets of interests) become the principal means of keeping the Plan up to date, given the rarity of major Plan reviews.

Underlying this approach is a peculiar perspective on implementation. The comprehensive planner is likely to see implementation as the carrying out of the provisions of the Official Plan in order to achieve sound municipal decisions and an orderly, efficient, attractive community environment. The Official Plan is "implemented", according to this view, by public works, land acquisition and other direct municipal actions, and by controlling private development. The implementing departments may see it differently, however. The engineer's department, for example, may feel it is implementing its <u>own</u> plans for roads, sewers, water services. Even the chief administrator, in the best position to hold an overall view, is likely to see the Official Plan as but <u>one</u> instrument among others (eg, the capital and operating budgets) for carrying out the Municipality's responsibilities; he is equally likely to respond more to the current reality of Council's expressed wishes, the problems and perceptions of today, and presently available resources to deal with them, than to the goals and policies of an Official Plan perhaps prepared some years ago in response to different realities.

A central problem here is that the planners and their Official Plans have excessive expectations: direction and control (that is, management) not only of the actions of the municipality as a <u>corporate</u> entity but extending to the <u>community</u> as a whole (the common good) where the municipality is merely one among many decision-makers. The fact is that the Official Plan is "implemented" in only one respect — land use — and then only in part by the planning department. Beyond that, implementation results from functional plans. The Official Plan seeks to guide <u>one</u> aspect, the spatial, of these municipal decisions (eg, where the schools are to be located, but not what is taught in them), and it seeks to influence public and private actions that affect the community but over which the municipality has no control. In this sense the so-called comprehensive planners are functional planners,[30]

30. Likewise, when a "functional" issue takes on critical importance — health, for example, or energy — then it becomes the prime value base for comprehensive planning and action.

their function being land use allocation and coordination, with development control as their implementing power.

As a guiding instrument the Official Plan may come in conflict with other such instruments, not only the budget but also other functional plans (eg, during a major transportation or housing policy review). Sometimes the Official Plan will prevail; other times it will give way and be revised (eg, where its predictions were wrong). It follows that only certain aspects of the Plan, those dealing with public control over the use of land, ought to be binding under the law. The remainder of the Plan's "control" is more properly exercised through other means, such as policy statements to which the Council commits itself (with procedures and possible legal safeguards to control the process by which commitment is reached and revised) and municipal procedures by which actions of municipal departments are coordinated.

These are hardly radical ideas; they are merely acknowledgement of reality. Consider, for example, the many variables affecting the planning and delivery of services with respect to transportation, water supply, sewerage, solid waste disposal, recreation and open space, public welfare, housing, education and cultural facilities, health, law enforcement, fire protection, and so on. Each function may have a different planning time-horizon; each may be at a different point between thresholds;[31] their clientele and priorities will vary; and each responds to differing policies, financial assistance programs and other imperatives at provincial and federal levels of government. Far too much variety exists here to make it feasible for the Official Plan, with its adoption and amendment procedures, to encompass all of the municipal functions.

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31. Urban threshold analysis is based on the simple observation that settlements encounter some physical limitations to their growth, either due to topography, their existing land uses or their public services systems. Thresholds in the latter are encountered from time to time — eg, when a sewage treatment plant's capacity is reached — and it then requires a significant increase in cost to overcome the threshold, after which the service cost declines until another threshold is reached. Coordinating the timing of occurence of thresholds can be a significant problem in municipal planning.

If reality demonstrates that a considerable number of municipal functions and activities necessarily occur outside the realm of the Official Plan, it similarly tells us that each of these also involves planning; the official planner has no monopoly on it. Planning, in the sense of preparing for purposeful intervention, permeates (or ought to permeate) municipal management. It is less important, therefore, to distinguish between planning and implementation than to differentiate various levels of planning/implementation combinations:[32]

- Strategic planning: the process of deciding on objectives of the municipal organization (not "the community"), on changes in these objectives, on the resources used to attain these objectives, and on the policies that are to govern the acquisition, use and disposition of these resources. Strategy infers major plans with major consequences, including but not confined to Official Plans. This level of planning is the job of the Council assisted by its chief administrator and senior staff among whom the planning director plays a key role.

- Management control: the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the municipal organization's objectives. This is the job of the municipality's chief administrator and department heads.

- Operational control: the process of assuring that specific tasks, particularly in relation to service delivery, are carried out effectively and efficiently. This is the job of department heads and their senior staff.

32. Adapted from R.N. Anthony, Planning and Control Systems: A Framework for Analysis (Harvard University Press, 1965), as quoted in Tony Eddison, Local Government: Management and Corporate Planning, Second edition (London: Leonard Hill, 1975), p.17-18.

Control as used here is a means for assuring that management and operations are effectively achieving the organization's objectives within the limits of its resources. Anthony states:

> Conformance to plans is not the standard against which performance should be measured. 'The closer the better' is not necessarily the best rule. That is why our definition of management control is worded in terms of the effective and efficient utilization of resources rather than conformance to plans. Of course, plans do provide a starting point for the appraisal of performance, and there can be a presumption that plans should be followed in the absence of contrary evidence. But this presumption should be rebuttable, and the rebuttal process should not be too difficult. To do otherwise is to run the risk of stifling initiative and encouraging unthinking mediocrity.[33]

The general significance of the foregoing distinction is its explicit recognition that planning operates at all three levels of municipal management. "Official" planning, or planning for land use and development control, is only one kind of municipal planning; it takes place primarily at the strategic level. At the management control level the planning director works with and advises other department heads to coordinate their planning in terms of the spatial framework in the Official Plan, while they in turn participate in formulation of that Plan. At the operational control level the planning department administers development controls and advises other departments on land use implications of their proposed programs.

The foregoing three-level distinction has a specific significance for natural-environment concerns. Addressing them effectively demands a close relationship between all forms of planning and implementation/control, for several reasons. First, man-environment relationships are highly complex and cause-effect linkages are poorly understood; prediction of effects of proposed actions is difficult, often impossible, which means that in certain circumstances large-scale long-term actions are far less desirable than short-term small-scale probes to test environmental responses and resiliences. Second, long-term plans tend to overlook what happens between the time of planning and the time of implementing actions; yet what occurs in the interim, a

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33. ibid.

function of environmental management practice, may be critical to maintaining the integrity of that environment (eg, a large site designated for a major new residential development 10-20 years hence requires careful management to ensure survival of the environmental quality which now makes that site desirable). And third, the real concern is for the actual effects of specific actions on specific environments, more so than for the quality of plans; perhaps this is the most important lesson comprehensive planners can learn[34] from the environmental movement.

What this means in terms of the natural environment is that it is necessary to aim for changes at all three levels of municipal management, including:

1. Increasing natural-environment inputs to and content of the Official Plan, recognizing the critical linkage between natural-environment functioning and land use.

2. Adding a process of pre-action environmental evaluation to provide for the needed natural-environment component in functional plans, to catch possible adverse environmental effects before they occur, and to offer opportunities to test current community values against specific porposals.

3. Adding an ongoing process of post-action environmental monitoring and evaluation to provide an accumulating, regularly updated base of information, knowledge and perceptions about the existing environmental condition of the municipality. We call this an "environmental Audit".

These three proposed improvements are intended to provide the basis for an environmentally-sensitive form of municipal management in Ontario. The first would improve the planning input at the strategic level, while recognizing the need to ensure that the basic spatial arrangement of the developing municipality must take account of its natural processes and its environmentally-sensitive areas. Because improving planning inputs is not sufficient assurance that the resulting plans will be environmentally sound, it is also

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34. Or, to be more accurate, re-learn, recalling Geddes.

necessary to evaluate the planning outputs, before they are acted on, ie, specific development proposals — plans, programs, projects — from government departments and private developers. Finally, it is necessary to have, as the basis for such evaluation, not only the Plan but also a thorough understanding of the existing environment and man/environment relationships including monitoring of natural environmental effects, which explains the environmental audit. Improvement to the Official Plan occurs mainly at the strategic planning level of municipal management, while environmental evaluation and audit take place at the level of management control and operational control.

Each of the three proposed improvements is now detailed in turn.

Improving the Official Plan

The most promising improvements related to the Official Plan would be to: (a) increase the natural-environment content of Official Plans; (b) require Plans to identify, and take account of in the land use plan, natural processes and environmentally-sensitive areas; and (c) provide the necessary means, eg, through land use and development control measures, by which environmental policies may be carried out. Although improvement (c) occurs at the operational control level, it is dealt with here because it relates directly to the physical-development-oriented Official Plan.

The Planning Act could be amended to require municipalities to provide in the Official Plan:

a. A definition of "the natural environment", a full description of the natural-environment systems and processes in the municipality (to the extent that knowledge and data permit, that is), and an evaluation of the existing and projected environmental condition with and without the Plan proposals.

b. Explicit statements of policy concerning conservation, preservation, enhancement and use of the natural environment with respect to those matters over which the municipality (i) has direct jurisdiction and control, such as a vegetation policy, (ii) shares control with other municipalities or intermunicipal agencies such as Conservation Authorities, eg, watershed

management, and (iii) actively supports, in fields of provincial or federal jurisdiction, eg, air pollution abatement.

c. Explicit relationships of environmental policies to feasible means for achieving the stated objectives.

d. Identification of environmentally-sensitive areas together with the criteria for their identification, how affected development rights are to be acquired, and how these areas would be managed.

Building up the capability to provide the environmental data required under (a) presents a special problem. The lack of understanding of the functioning of natural systems, and their interaction with human activity systems, is a key factor explaining the absence of natural-environment consideration in municipal planning and management (eg, few planners would be enthusiastic about appearing before the Ontario Municipal Board to defend prohibition of development on ecological grounds). Yet, a necessary starting point in more environmentally-sensitive planning is the accumulation of environmental data which would include:

- Developing an understanding of key ecosystem components, in the municipality and within a regional context. At a minimum this would include (a) vegetation, (b) soils (major improvement is needed in most of Ontario's soil surveys to render them usable to planners), and (c) hydrology and water-oriented features.
- Developing an understanding of the relationships between the various natural environment components (eg: soil and water; climate and vegetation).
- Developing an understanding of the relationships between ecosystem components and key human activities in the municipality (eg: water and recreation; wetlands and agriculture; climate and air pollution).

- Determining the suitability of natural resource elements for specified land uses/activities, and identifying constraints required on human activities to maintain natural-system functioning — ie, the capacity of each area to absorb development and which areas should not be developed at all.[34]

An examination of environmental data raises several issues:

Relevancy. Data collected must relate to the information needs of municipal planning and decision-making; much time, effort and money is wasted on gathering information of interest only to those assembling it. Numerous general sources exist (eg, the Canada and Ontario Land Inventories) which may be useful in the early stages of environmental planning. But usually, data requirements specific to a given planning exercise or decision (eg, relating a proposed development to the capacity of natural systems) must be met by special study, especially in the short run prior to establishment of data bases.

Continuity. Data must be related and stored in such a way that future information gathering may build on what has already been done (too many costly studies merely repeat previous work). That is what a data system base is all about.

Operating the environmental data base. Who would collect and store the data? Who would operate and pay for the data systems? Experience in the Regional Municipality of Waterloo, pioneering with its computerized environmental data base, suggests that the regional municipality or county level would be an appropriate

34. One approach is based on environmental carrying capacity, defined as "the limit at which human activity will lead to undesirable changes in the environment." Problems with this approach lie in defining clearly the underlying concept (eg, distinguishing between physical and perceptual carrying capacity), measuring carrying capacity (eg, determining the relationship between the resource and the loads on it accurately enough to predict carrying capacity), and planning methods (whether carrying capacity can result in establishment of thresholds usable in planning and defensible to decision-makers and in court). See David R. Godschalk and Francis H. Parker, "Carrying Capacity: A Key to Environmental Planning?" Journal of Soil and Water Conservation, July-August 1975, pp.160-165.

scale for establishing this information function: large enough to encompass the macro-units such as watersheds, yet close enough to the users and the environmental situation to remain accessible and keep up to date.

Sound environmental data constitutes a necessary input to environmental goals and policies which could be a further improvement to Official Plans. One approach, suggested by a recent consultant's report on countryside planning based on Huron County,[35] would establish an overall "perspective" on each area's present and future dominant function — for instance, agriculture, recreation, forestry, mineral, urban. All proposed uses of land would be evaluated and designated in relation to this perspective which would constitute a built-in bias, reflecting the area's long-term commitment to that function. Natural environment is seen as an influence permeating all perspectives. Natural-environment concerns and policies, therefore, would be related directly to the selected perspective; for example, an urban-environmental perspective would be different from an agricultural-environmental perspective in terms of how the natural environment would be perceived, valued and dealt with in municipal planning and management.

The Regional Municipality of Waterloo exemplifies one approach to environmental goals and policies. Environmental policies are included in a special section of the draft Official Plan, "Environmental Policy: Preserving Nature's Balance".[36] Three classes of environmental features are addressed: floodplains on major watercourses; major environmentally-sensitive areas; and other features including forests, organic soils and steep slopes. An alternate approach is being pursued by the Town of Oakville in its preparation, in-house managed by a consultant, of an Environmental Plan and Environmental Review Process as a component of the Official Plan and part of the Plan Review.[37]

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35. James F. MacLaren Ltd., Countryside Planning: A Methodology and Policies for Huron County and the Province of Ontario (Ministry of Treasury, Economics and Intergovernmental Affairs, July 1975).

36. Published in a newspaper format: "The Regional Official Policies Plan" Conestoga Wagon, Vol. 3, No. 1, 1975, pp.13-14.

37. Town of Oakville, Planning Dept., Proposed: An Environmental Plan for the Town of Oakville, Dec. 1975; and Oakville Environmental Plan: Phase II Work Program, May 1976.

Maintaining natural processes and protecting environmentally-sensitive areas when formulating environmental policies and development patterns is a further field for improvement. This applies from micro scale, focusing on a site's ecosystems, through to the macro (region or beyond) scale which emphasizes considerations such as material and energy flow, and water and airsheds.

The follow-through from environmental policies to preservation and enhancement of environmental systems and features is again illustrated by the Regional Waterloo Draft Plan. The Plan contains explicit policies to protect environmentally-sensitive areas; designation is intended to maintain the natural features to the maximum possible extent. The areas are to be protected from development which would have a major impact on the natural system or feature; environmental impact analyses are required to ascertain whether development should proceed and if so, under what conditions.

The use of environmentally-sensitive areas, which evolved from the Ministries of the Environment and Natural Resources near the beginning of this decade, is likely to fit easily into the municipal planner's repertoire. Its use is fairly well-established[38] in many Official Plans, at least in terms of hazard land. What is needed now is to progress to a wider set of categories, reflecting not only direct but also indirect hazard to man, and acknowledging the hazards of human activities to non-human forms of life. Four categories of environmentally-sensitive areas, more accurately termed "Environmental Protection Areas", are suggested:

1. Protection of human activity from the natural-environment. Areas of natural hazard such as floodplains and slopes subject to slippage.

2. Protection of natural environments from human activity in order to safeguard human activity. Refers to areas, such as aquifer recharge zones, which if allowed to develop could lead to

38. An overview of the use of such areas in Canada is provided in P.F.L. Allen, C. Gates and J.P. Thompson, An Assessment of Natural Area Programmes: Implications for Ontario (York University, Faculty of Environmental Studies, May 1976). U.S. experience is summarized in U.S. Dept. of the Interior, State Resource Management Programs: Primer, Critical Areas and Information/Data Handling, Jan. 1976. For a more extensive treatment on the subject, including detailed criteria and rating systems, see Smithsonian Institution, Planning Considerations for Statewide Inventories of Critical Environmental Areas: A Reference Guide (Springfield, VA: National Technical Information Service, Sept. 1974).

pollution or other loss of an essential resource.

3. Protection of natural environments from man. Fragile and unique areas (eg, endangered species, wildlife habitat, rare geological formation). Could also be extended to historic, archeological and other cultural resources.

4. Protection of natural environments for man. Areas uniquely valued in themselves, eg, for aesthetic reasons (eg, a scenic view).

Problems with respect to Environmental Protection Areas are threefold. The first is identification — establishing appropriate criteria that enable each category to be effectively identified in a manner that is politically and legally defensible; inadequate data and knowledge (eg, of ecosystem functioning) present related difficulties here. Criteria are both absolute and relative (ie, what is valued locally may be less valued at a regional or provincial scale, and vice versa); province-wide (as well as beyond, to larger scales) and regional criteria are needed, with local areas then allowed to add but not subtract criteria. The second problem is acquisition and control — how to obtain, usually through some form of acquisition, the development rights for such areas, and/or otherwise protect them from incompatible uses. The third problem is management which refers to: (a) maintenance of the functioning of such areas, eg, protection of wildlife habitat or sustaining the natural productivity of a marsh; and (b) ensuring that the use of such areas is limited to activities compatible with their continued functioning.

In Ontario at present, municipalities are severely constrained in the jurisdiction they may exercise with respect to Environmental Protection Areas. Zoning is possible for limited purposes; for most EPAs, however, it would involve prohibition of use sufficiently severe to constitute a "taking", requiring compensation. Power to acquire limited development rights of owners of EPAs, or to protect certain environmental characteristics (eg, scenic easements) does not exist. The most reliable solution available is outright purchase but municipalities do not seem to possess the power either to acquire land for purposes of protecting an EPA or to spend money for that purpose (unless the land is to be used for a park). Municipalities, therefore, are severely hampered in their ability to address the issue of Environmental Protection Areas.

Because the range of issues related to Environmental Protection Areas is considerable, a special Act, rather than amendments to the Planning Act, may be in order. It could provide for:

- Categories of Environmental Protection Area and the means of and criteria for identifying them.
- Clear powers of acquisition of EPAs by municipalities, in accordance with Official Plans and with reference to the Conservation Authority and the Ministry of Natural Resources; and clear authority for municipalities to expend funds for these purposes.
- Alternate means to acquire development rights and protect environmental features.
- Clarification of the respective role of municipal Councils and Conservation Authorities in the control of development in floodplains. An example of current practice: Council receives a development proposal in a floodplain and passes it on to the Conservation Authority. The Authority responds that it can only enforce regulations concerning the prevention of exposure of buildings to the risk of floods (a developer may be able to overcome this problem through design) and the placement of fill below the floodline; Council is responsible for land use designation and development control, the Authority argues. While each side holds rigidly (and correctly) to its position, the development slips through; if real danger exists, the specific owners and eventually the public, called upon to take corrective action, are the ultimate losers.[39]
- New municipal power to prohibit all development in key EPAs, other than floodplains, which are of critical importance to the community (eg, a headwater or aquifer recharge area for the municipality's water supply).

39. For example, "Etobicoke neighbourhood watches backyards slip away" Globe and Mail, 2 Feb. 1976; and "Erosion threat seen to North York homes on Don Valley ravine" Toronto Star, 24 Feb. 1976.

- Coordination of all municipal and provincial development regulations (eg, bringing consents into line with Official Plans).
- Power to prevent owners of identified but not yet established EPAs from destroying the natural-environment characteristics of the area prior to its acquisition.
- Provision for municipalities to enter into agreements, with Conservation Authorities, the Ministry of Natural Resources or private agencies (eg, the Nature Conservancy of Canada) to manage EPAs.

Protection of environmental features and areas is easier to grasp than protection of natural-environment systems and processes. Yet the former may be futile without the latter. Tree cutting bylaws regulate the removal of certain vegetation, but trees are not destroyed only by attacking them directly; they are also susceptible to destruction by changes in the water table, for example, which for some municipalities may require groundwater management — control of human activities that affect the quantity and quality of surface and ground water near areas of valued vegetation. In turn, this may require runoff management to control the flow of surface water (eg, through careful design of water absorption characteristics of surface areas in a new subdivision, thereby reducing the amount and rate of runoff; or by requiring developers to contain on-site all or part of the runoff from their developments).

Proper consideration to natural systems and processes promises direct benefits to municipalities:

> The ordinances give local government an involvement in development decisions for environmentally sensitive areas which they previously did not have. With this involvement, local governments can play a substantial role in resource protection by controlling some of the externalities of development: reducing public hazards, protecting adjoining property owners, maintaining water quality, and reducing future governmental costs from environmental degradation.

> The ordinances have refocused land-use controls so that they are designed to maintain the natural processes of these environmentally sensitive areas, rather than to designate the required use of the land. By refocusing land controls in this way, this work has made the performance orientation in land controls more prominent than has been typical in the past.
>
> The shift towards performance orientation in land controls has meant a substantial refinement in a community's ability to identify which aspects of development it needs to control. Instead of maintaining the predominantly negative function of restricting use, a community can identify the positive features of the land it needs to preserve and provide the landowner greater flexibility in his use decisions within this framework.[40]

One of the more promising development control techniques, incorporating natural-system capacity, is known as impact zoning. It replaces density restrictions with performance-type controls based on a before-the-fact assessment of how the proposed project will affect the community, considering:

1. the growth rate of the community as it relates to the present population, the available land and the growth rate of the surrounding region.
2. the community's infrastructure - sewers, water, roads, etc.
3. the economic picture - what the new project will cost the community in services vs. what it will return in the form of tax revenues.
4. natural determinants, or the project's impact on the environment of its site and surrounding areas.[41]

Advocates of impact zoning argue that it is a means for heading off conflict between developers and environmentalists (both of whom may have sound arguments in certain cases) since one result of an impact-zoning analysis is a map showing what intensity of land use is acceptable in various parts of the municipality. Potential problems are the overly-mechanistic process (heavy reliance on

40. Charles Thurow et al, Performance Controls for Sensitive Lands: A Practical Guide for Local Administrators (American Society of Planning Officials, 1975) p.1. The report devotes a chapter to each of five kinds of sensitive areas: streams and creeks; aquifers; wetlands; woodlands; and hillsides.

41. J.M. Stimson, "If There's a way out of the impasse among housing, the community and the environmentalists, the way is impact zoning" House and Home, August 1972. Other sources on impact zoning include the firm who developed this approach, Rehankamp Sachs Wells and Associates, Inc., Development Impact Model — III, Impact Zoning in Duxbury: A Model for Land Use Control (Philadelphia, 1973).

assignment of numerical values to the key parameters of community growth, infrastructure, economics and natural determinants), the cost of preparing an impact-zoning analysis (for Dusbury, pop. 9-12,000, reportedly $60-70,000), gaps in understanding of environment-activity systems, and how to assure that the results will stand up to legal scrutiny.[42]

Environmental Evaluation

While the improvements suggested in the previous subsection are familiar to municipal planners and administrators, evaluation would be something new to many of them. Two kinds of evaluation are proposed: (a) before-the-fact evaluation involving examination of proposed plans, policies, programs and projects before final municipal commitment, with reference to certain environmental criteria and with the acknowledgement that various legitimate value positions may exist on a given environmental effect; and (b) after-the-fact evaluation with reference to initially-stated goals (general value positions) and objectives (more specific desired outcomes), periodic examination of implemented plans, policies, programs and projects to uncover total environmental changes and to ascertain the effectiveness of environmental interventions.

Environmental assessment is the most-discussed current technique for before-the-fact evaluation in relation to natural (and human) environment concerns. It has two main objectives: to inject a higher level of environmental consideration into decision-making; and, more fundamentally, by providing information on the effects of a proposed action, to minimize direct adverse effects from the project as well as indirect and longer-term cumulative effects. Derived from U.S. practice under the National Environmental Policy Act which came into effect in January 1970, environmental assessment reached Ontario in

42. Fairfax County, Virginia, has an Impact Development Control Ordinance in effect. In August 1974, the circuit court, later confirmed by the Supreme Court, struck down that part of the ordinance relating to site plans and subdivisions. See "215 Va. 434, Board of Supervisors of Fairfax County v. Roy G. Allman, Trustee et al., Supreme Court of Virginia, Jan. 20, 1975" 211 South Eastern Reporter 2d Series, pp.48-56; and "216 Va. 49, Board of Supervisors of Fairfax County vs. Thomas R. Williams et al., Record No. 730996, Supreme Court of Virginia, June 13, 1975" 216 South Eastern Reporter 2d Series, pp.33-48.

mid-1975 when the Environmental Assessment Act was passed[43]. The Act, which is intended to be brought into effect in stages by proclamation, provides for assessment of the effects on the environment of certain undertakings:[44] enterprises, activities, proposals, plans and programs of the provincial government, municipal governments, and major commercial or business enterprises. The Government's stated intent is to apply the Act first to designated undertakings of certain provincial Ministries and agencies (to have been done at the beginning of 1976); its application to municipalities and the private sector is to follow shortly. A special "Municipal Work Group for Implementation of the Environmental Assessment Act" is now preparing draft regulations indicating what undertakings are to be assessed, when and how, etc., when the Act is applied to municipalities.[45]

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43. Ontario is the only Canadian province with an Environmental Assessment Act. Most other provinces are proceeding with some form of environmental assessment via administrative procedures rather than legislation, or through regulations added to existing legislation (also true of the Government of Canada and its Environmental Assessment Review Process, in effect since 1974, administered by Environment Canada's Environment Assessment Panel). No other province has, as yet, applied environmental assessment to the municipal level; on the other hand, numerous U.S. states and local governments have EIA legislation and procedures in effect. Refer to Reg Lang and Audrey Armour, Urban Environmental Assessment in Canada and the United States (Ottawa: Ministry of State for Urban Affairs, June 1976), publication forthcoming; and Steve Carter et al, Environmental Management and Local Government, for the U.S. Environmental Protection Agency (U.S. Government Printing Office, 1974).

44. "Environment" is defined broadly to include, in or of Ontario, "air, land or water; plant and animal life, including man; the social, economic and cultural conditions that influence the life of man or a community; any building, structure, machine or other device or thing made by man; any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from the activities of man; or any part or combination of the foregoing and the interrelationships between any two or more of them."

    "Undertakings" are to be designated by regulations.

45. Information obtained from Mr. Dave Young, Ministry of the Environment and member of the Work Group. Other members, appointed by the Provincial-Municipal Liaison Committee, include a representative of the Municipal Engineers' Association and two municipal planners. The Liaison Committee itself comprises three representatives of the province's municipal associations and a representative of TEIGA. The Work Group is expected to report to the Committee in Fall 1976. Thereafter, the proposed regulations are to be circulated for comment by municipalities prior to proclamation.

Under Section 5(3) an environmental assessment shall consist of:

a. a description of the purpose of the undertaking;

b. a description of and a statement of the rationale for,

   i. the undertaking,
   ii. the alternative methods of carrying out the undertaking, and
   iii. the alternatives to the undertaking;

c. a description of

   i. the environment that will be affected or that might reasonably be expected to be affected, directly or indirectly,
   ii. the effects that will be caused or that might reasonably be expected to be caused to the environment, and
   iii. the actions necessary or that may reasonably be expected to be necessary to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment,

   by the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking; and

d. an evaluation of the advantages and disadvantages to the environment of the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking.

The Act provides for public hearings, as required by the Minister or by a proponent or by any person, to be held by the recently-established Environmental Assessment Board. Designated undertakings are to be approved by the Minister (or his designates) or the Board, as the case may be, before they are allowed to proceed.

Until the Province issues regulations pertaining to municipalities, the implications of the Environmental Assessment Act for municipal planning and management are speculative. Nonetheless, several things are apparent.

First, municipal environmental assessment seems likely to occur eventually.[46] The question is not if but when.

46. A number of Ontario municipalities have already begun some form of environmental assessment within the municipal planning process, or propose it. Examples include the Regional Municipality of Waterloo, Borough of Scarborough (Public Works Department), City of Timmins (draft plan), Borough of Etobicoke, Regional Municipality of Peel, and the City of Toronto.

Second, the processes of environmental assessment and municipal "official" planning, though serving somewhat different purposes, contain significant similarities. If the U.S. experience is a guide, unnecessarily-time-consuming, wasteful and costly delays will result, and important opportunities will be lost, if the two processes are not integrated at the municipal level.

Third, such integration should not be a matter of one process superseding the other; each is required. Making municipal official planning more sensitive to environmental concerns (eg, better data) in itself will not ensure that the resulting actions are similarly sensitive. In the first place, the low priority often given to environmental considerations in favour of economic or political concerns is less a matter of inadequate environmental information than a question of what is valued; in other words, planning assists but does not bring about value change. Then there is the possibility that a plan or proposed project judged environmentally sound by the planners may appear environmentally destructive to some of those directly affected; again it is a matter of values which are inherently subjective.[47] Finally, experience suggests that it would be overly optimistic to assume that Official Plans, however environmentally sound, will fully control subsequent public and private actions. Plans have a limited capability to respond flexibly to changing circumstances; and, governmental structures being what they are, it is difficult, often impossible, to ensure that functional decisions and actions conform precisely to the intentions of the comprehensive planners. Environmental assessment offers potential for (a) catching functional projects, and private-sector proposals, at a point where they are sufficiently specific to allow meaningful evaluation but before commitment to action; and (b) subjecting them to close scrutiny as to their environmental effects/impacts. If the proposed action is based on sound environmental planning, the environmental assessment should then proceed that much

47. Every proposal has environmental effects and impacts; the two are not the same. "Effect" describes a change — eg, the proposed power plant will discharge effluent 20° warmer than the receiving water thereby driving away trout. "Impact" evaluates the described change in terms of its desirability (which, in this example, depends on how important the evaluator considers trout to be). Effects can be handled objectively, with a range of valid viewpoints possible for a given issue; often they are capable of being expressed only when plans reach a specific stage.

more easily and quickly. But, for significant actions, environmental assessment will still be needed: to allow alternate expressions of impacts; to ensure that consideration has been given to the full range of alternatives to the proposed action; and to provide a means whereby the people of a community can articulate their goals in a setting that deals with specific links between ends and means (contrasted with a typical planning exercise that deals with goals in the abstract). Environmental assessment also has application to policies and to plans themselves, including Official Plans — a difficult task (especially in assessing the vast array of combinations of direct, secondary and cumulative effects generated under a comprehensive municipal plan) but nonetheless a promising one.[48]

On the other hand, environmental assessment alone is insufficient to ensure high-quality decisions and actions with respect to a municipality's natural environment. At best, the conduct of environmental assessments of proposed municipal actions will lead to fewer environmentally-destructive actions and the gradual development of more environmentally-sensitive planning underlying such actions. But that, is project/functional planning only; it still leaves undone two important tasks. First there is the job of ensuring that roads, sewers, parks, sanitary landfills, etc. are located so as to avoid interfering with environmentally-sensitive areas and natural processes; if the comprehensive land use plan carelessly directs functional activities to environmentally-sensitive areas environmental assessment will be of little avail. Second, functional plans cannot deal adequately with secondary, collective and cumulative environmental effects (eg, a trunk sewer may avoid an environmentally-sensitive area only to have the area slowly destroyed by the subsequent development the sewer generates). Experience indicates that,

48. California's EIA legislation, which requires environmental assessment of municipal plans, has generated considerable useful experience. See Arthur W. Jukela, Self-Regulation of Environmental Quality: Impact Analysis in California Local Government (Claremont, CA: Center for California Public Affairs, 1975). Also: A.C. Lemer, Assessing the Environmental Impact of Regional Plans (Washington: American Institute of Planners, Confer-In paper, 1974); Richard C. Hall, "The Master Environmental Impact Report - A Method for Evaluating the Environmental Impacts of General Plans" Design Methods and Theories, Vol. 10, No. 1, Jan.-March 1976, pp.15-20; and David C. Williams, "Environmental Impact Statements: Preparation and Review by Local Governments" Management Information Service Report, Vol. 7, No. 6 (International City Management Association, June 1975).

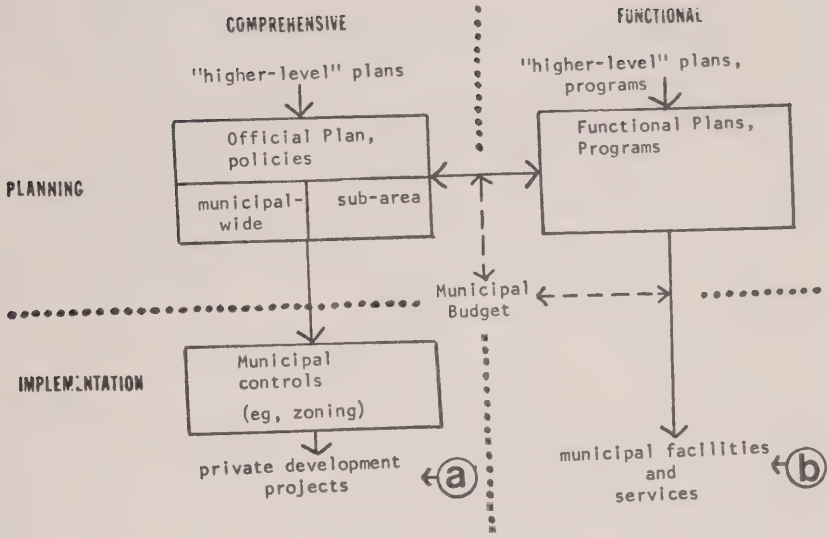
in rapidly urbanizing areas, secondary and cumulative effects of development are much more environmentally significant than initial effects [49] (eg, a subdivision may be well designed in relation to its natural setting along a river; but the cumulative effect of many subdivisions will be to increase the amount and rate of runoff, itself environmentally damaging,[50] which in turn may require the building of dams that irreversible change the river ecosystem). Sound comprehensive environmental planning, therefore, is a necessary base for meaningful environmental assessment.

Finally, the problem is how to relate effectively municipal planning and environmental assessment within the larger process of municipal management. This subdivides into two problems: (1) how to combine the preparation of plans and environmental assessments; and (2) how to combine the procedures of reviewing, approving and amending Official Plans and environmental assessments. The first problem turns out to be easier to handle than the second.

In its ideal form the official planning function comprises the components and linkages shown by the following diagram:

49. See Guidelines issued by the U.S. Council on Environmental Quality, under the National Environmental Policy Act, Part II, Vol. 38, No. 147, 1973, Section 1500.8.3.ii, on the significance of secondary effects. Also E.J. Croke, "An Evaluation of the Impact of Land Use on Environmental Quality" in D.M. McAllister (ed.), Environment: A New Focus for Land Use Planning, (Washington: National Science Foundation, 1973).

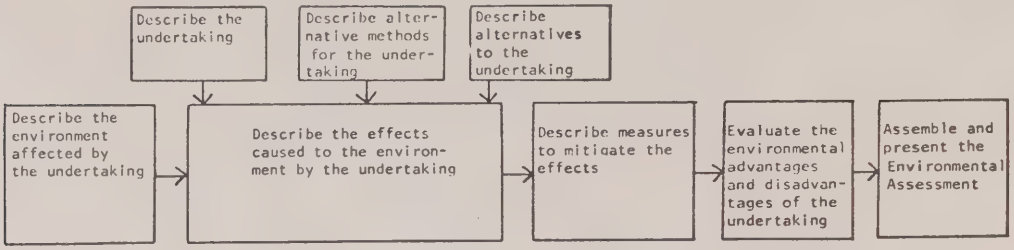
50. According to a U.S. Environmental Protection Agency study, runoff from streets is similar to sanitary sewage. An analysis of a hypothetical city of 10,000 people on 14,000 acres of land indicated that a moderate to heavy storm (brief peaks to at least 1/2 inch per hour) would constitute considerably more pollution load than would the city's sewerage system during the same time period. In every measure of pollution, except for coliform count, storm water runoff produced substantially more pollution than even raw sewage. Quoted in Simcoe-Georgian Area Task Force Development Strategy (TEIGA, Feb. 1976), p.9.



Environmental assessment, applied to municipal or municipally-controlled undertakings, could occur at points A and B — ie, at the end of what is already a lengthy process. Initially, such a sequential approach might be unavoidable; it could be minimized (a) by applying environmental assessment selectively, only to those municipal undertakings judged to have significant environmental consequences, allowing lead time for environmentally-oriented plans to be prepared, and (b) by the Province and the larger and better-staffed municipalities carrying out "class studies" to increase the level of knowledge with respect to environmental effects.[51] Eventually, however, as experience is gained, environmental assessment should become part of the functional and project planning that culminate in private and public project proposals.

51. "Class study" here means an examination, in general, of the environmental effects of a category of activities — eg, railways in urban areas, or sanitary landfills (class studies can also be done for categories of sites, eg, marshes). Through a class study it is possible to determine the key characteristics of that activity (or site) which are environmentally significant, to sketch out the main kinds of effects to look for, to indicate useful sources of relevant information, and to demonstrate methods proceeding with environmental assessment. Class studies provide a necessary shortcut in environmental assessment, reducing the time, money and effort required for individual assessments. Indications are that the Ministry of the Environment already has some class studies underway.

The process of environmental assessment under Ontario's Act involves:



Much of the work required to prepare an environmental assessment could be carried out as part of the planning leading up to a project. Difficulties will be encountered, however, with respect to identifying, predicting and evaluating certain environmental effects.[52] One effect of environmental assessment will be to expose some of the knowledge deficiencies that exist within the practice of planning and its contributing disciplines/professions; since these deficiencies relate to important matters, often at the centre of human health and long-term survival, confronting them is as much a need and an opportunity as a problem. By carrying out the key class studies, deliberately reaching out to experience gained elsewhere, and creating information networks to bring existing and new knowledge quickly into the hands of planners and decision-makers, the foregoing "effects" gap should be capable of being rendered manageable. Combining the preparation of project plans and environmental assessments, therefore, appears feasible. Proclamation of the Environmental Assessment Act will be the push required to make this happen; other actions, as indicated above, can help make it easier.

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52. For example, considerable knowledge has been accumulated concerning the level of noise at which people begin to complain; less is known about the physiological and psychological effects of noise on humans, and even less with respect to such effects on non-human life. Also: it is generally known that trunk-sewers can generate developmental effects. But can a general model be developed to predict, specifically and accurately, these effects for a range of situations? The U.S. Environmental Protection Agency, after an extensive research effort, concluded the answer is no. Source: interview with E.P.A. officials in Washington, April 1976. Refer to: S.E. Bascom et al, Secondary Impacts of Transportation and Wastewater Investments: Research Results and ....Review and Bibliography (U.S. E.P.A. 1975).

On the other hand, the two processes of review — of development proposals under Official Plans and environmental assessments — will be more difficult to combine. The problem centres on how to achieve the desired degree of public control while minimizing the costs and the time involved. The problem can be addressed only generally here because the process of municipal environmental assessment will be unknown until that part of the Act is proclaimed, and there are various directions the process could go.[53] Nonetheless, two sets of problems can be identified.

First, it should not be too difficult to integrate the early stages of municipal environmental assessment with planning review. When a proponent makes his initial inquiries to the Planning Department his preliminary proposal could also be subjected to a screening process, based on predetermined criteria approved by the Ministry of the Environment, to determine whether an environmental assessment was required. If so, it could be prepared while negotiations on his proposal were proceeding. His final proposal would then be reviewed by the Planning Department, with reference to the Official Plan and development controls as well as the requirements of other municipal Departments, and with reference to established criteria for environmental assessment. Presentation of the proposal for final endorsement could involve environmental approval, but concurrently with other approvals. Detailed examination, design and testing of procedures would be necessary before to assure the feasibility of this approach in various municipal situations. Key variables include how the decision is made concerning what is to be assessed, and who makes that decision (Minister? Council? Planning Department? Environmental Committee?); whether there is to be a two-category approach to environmental assessment (numerous minor reviews and only occasional full-scale assessments); how and by whom environmental assessments are to be reviewed; and how and by whom the final decision on a project proposal is made. Also important will be whether

53. Environmental assessment is coordinated with municipal planning in St. Paul, Minnesota. See Ken Kzugan, "Environmental Assessments for Community Development Block Grants" Practicing Planner, April 1976. Contrasting approaches are documented as case studies in Lang and Armour, ibid., as well as in sources listed in the bibliography of this report (City of Inglewood, County of San Diego, Catalano, U.S. Dept. of HUD, Voorhees and National Model Cities Community Development Directors Association).

the municipality can so organize its planning and environmental assessment that the same data are applicable to each process, with acquired information built into a data system that reduces repetition of data collection by proponents and planning staff, thereby minimizing costs and delays.

A more significant problem would arise in rationalizing the two processes of public hearing and appeal, either by a dissatisfied proponent or by opponents of the proposal. Official planning and environmental assessment each have separate routes in this regard: plans end up at the Ontario Municipal Board or Cabinet and environmental assessments are destined to wind up at the Environmental Assessment Board or Cabinet. A major challenge for the provincial-municipal Work Group preparing regulations under the Environmental Assessment Act will be to determine how to minimize the time delay and attendant costs that will result if the two routes are used in tandem.

Environmental Audit

Environmentally-improved Official Plans and the addition of environmental evaluation to municipal management would each depend for its effectiveness on the existence of a sound understanding of the community environment (such an understanding is often gained during preparation of a Plan but not maintained thereafter). The management instrument suggested for this purpose is labeled "environmental audit". Its objectives and operation would include:

1. Provision of baseline data for evaluating proposed changes to the Official Plan and its accompanying measures, proposed changes to natural-environment/human-activity relationships in the municipality; and suggested measures to mitigate projected adverse environmental effects. Achieving an economy of information storage and handling through build-up of a comprehensive integrated data system[54] fed by information from municipal planning

54. An example of a municipality using an "environmental audit" approach is the County of San Diego, California's Integrated Regional-Environmental Management:
...San Diego now has one of the most detailed environmental data collections of any county in the United States. It has a computerized "early warning" system that allows a planner, private developer or public agency to find out whether a piece of land proposed for development has any peculiar qualities that might make development unacceptable for any one of 23 reasons (eg, excessive sloping, load-bearing capacity, existing population density, water supply and quality). IREM has also developed a set of indices for monitoring environmental changes in the area.
Source: Ford Foundation, The Art of Managing the Environment, Sept. 1974, p.37.

exercises, development proposals, environmental evaluations, neighbourhood inventories, and the activities described below.

2. After-the-fact evaluation of actual direct, secondary, longer-term and cumulative environmental effects, many of them unforeseen or unpredictable at the plan preparation or project proposal stages, of actions taken earlier. Special environmental evaluations of sets of cumulative effects of concern (eg, overall examination of what is happening to a river valley). And evaluation of the effectiveness of implemented environmental plans, policies, programs and mitigating measures.

3. Monitoring of the changing quality of the community environment (man/environment relationships), as well as public perceptions of that quality; this could be decentralized eventually to the local-community or even neighbourhood level. Monitoring of the functioning of the municipality's natural systems particularly with respect to changes in their carrying capacity. Regular feedback — including an annual state-of-the-environment report to provide benchmarks and environmental trends and to signal the approach of critical "thresholds" — the elected representatives, officials, proponents and other people of the municipality concerning the community's environmental condition. Creation of new and needed opportunities for expression of community values and satisfaction with respect to its environment; provision of a new means for "educating" the people of the community towards a deeper appreciation of their dependency on the continued functioning of key natural processes, and how that dependency is threatened.

The environmental audit would both serve and generate planning and environmental assessment activities. Plan and policy changes could be expected from its operation; a necessary aspect of that operation would be to relate a municipality's ongoing environmental audit to similar environmental data bases and data evaluation at the wider ecosystem, regional and provincial scales.

Responsibility for setting up and overseeing the operation (in which the Planning Department would likely play a key role) of both the environmental evaluation and environmental audit should be assigned to an interdepartmental committee of municipal department heads, with responsibilities for activities significantly affecting the natural environment, reporting to a committee of Council.[55]

Toward an Impact-Oriented Municipal Management

Taken individually, environmental content in Plans, environmental evaluation of proposals prior to commitment, and ongoing environmental audit represent innovations in municipal planning. They would render the planning process more dynamic than it is now; they would close the gap between planning and implementation, essential in environmental management; and they would increase the capability of planners to respond effectively to the demands placed upon them while widening the role of the comprehensive planner.

Taken together, these innovations in fact comprise a new approach to municipal management, in three respects. First, planning would be seen as a pervasive activity not confined to land use; in this sense the comprehensive planner's role would be focused explicitly on land use (even while it is extended to evaluation, as suggested above). Second, the "Official" Plan's focus would be similarly restricted to land and other spatial aspects of the municipal operation (even though the considerations that bear upon the Plan remain wide). Other means, such as policy statements and the use of corporate planning,[56] could be employed to give the municipality system-wide direction, control and coordination; it is doubtful if any Official Plan is able to achieve these things, irrespective of its promise. Finally, the evaluative approach suggested here in response to natural-environment considerations has broader validity. Fiscal impact and cost-benefit analysis, impacts on service capacities, social impact assessment and energy impacts are obvious directions

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55. An alternative proposed by the City of Toronto is an independent environmental assessment commission. See City of Toronto Planning Board, memo from Commissioner of Planning to Technical Planning Committee, on "Environmental Assessment for the City of Toronto" and including "Fundamental Principles for an Environmental Assessment Procedure Approved by City Council of Toronto on May 15, 1974."

56. Eddison, ibid.

to pursue. The Province would be advised to consider taking the load off of Official Plans in this regard. Rather than attempting to ensure (through a long lengthy process of review) that Official Plans do all they promise to, the Province might give more attention to assuring that municipalities have in place the necessary management process, that they conduct their affairs with full and explicit regard to a prescribed range of implications of their intended actions,[57] and that they follow up with monitoring, post-action evaluation and regular dissemination of the results.

Environmental issues demand such an approach. But it is equally applicable to the municipal operation as a whole, turning the emphasis from planning to the larger process of municipal management. In the face of increasing uncertainty, it seems an appropriate direction to go.

3.2 THE PROVINCIAL LEVEL

The three kinds of improvement — environmental content in Official Plans, environmental evaluation and environmental audit — offer considerable promise for generating a style of municipal management that can give higher priority and more effective attention to the natural environment. These are innovations at the municipal level, however; they are unlikely to achieve their potential without corresponding action by the provincial government.

Provincial-municipal relationships, as they pertain to the natural environment, exhibit four problems, detailed earlier. First, the Planning Act gives scant attention to environmental concerns, and it does not require Official Plans to address environmental issues. Second, Ministry of Housing policies and review procedures with respect to municipal plans, associated measures and amendments thereto similarly are not environmentally oriented; environmental concerns are left to be picked up when such proposed measures are referred to the Ministries of Environment and Natural Resources which perform only an advisory role in the

57. For example, Hall, ibid., based on the experience of Santa Clara County, sets out an approach using "resource accounts" to provide regular information on the capacity of municipal sub-systems (eg, sewers, water, transportation, education, finance, natural resources, etc.) and requiring impact assessment of proposed plans, policies and projects to measure their probable effects on these sub-systems and to signal the approach of critical thresholds that necessitate special interventions. This approach differs mrakedly from preparing an Official Plan and then relying on conformance to it to assure that available resources are appropriately used.

final approval of municipal plans. Third, Official Plans are supposed to relate to provincial-regional plans and strategies but these deal only superficially with the natural environment; they provide no real framework within which to conduct municipal environmental planning. And fourth, jurisdiction over matters affecting the natural environment, in terms of both planning and management, is unclear and fragmented.[58] The need for clarification was a common theme arising out of the survey of municipal planners.

A deeper problem underlies the foregoing four: the lack of an explicit identification of province-wide interests in relation to the natural environment, despite a general acknowledgement of the importance of the natural environment to the Province's activities:

> It is recognized that urban and economic development takes place in a very diverse physical setting; so that the wrong choice could result in a development site with unusable land, or high building or servicing costs, or unfavourable micro-climate. At least equally important, it could result in the loss of valuable natural resources, the overloading of streams or lakes with wastes, the disruption of fragile ecosystems, and other adverse environmental impacts. The government therefore recognizes the imperative need to respect the natural environment in formulating plans and programs for economic development and urban settlement and expansion.[59]

The Government has taken specific action on parts of the environmental concern (eg, pollution control). But these actions appear to result from responses to discrete problems (eg, individual Ministries, such as Natural Resources, given responsibility for certain aspects of the natural environment; and individual pieces of legislation, such as the Endangered Species Act, covering other isolated bits). Lacking is a holistic framework (not a super-department, however) to tie these actions together and make their combined purposes clear.

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58. A recent (1974) identification of environmental responsibilities as set out in provincial and municipal laws listed 41 separate Acts. See David Estrin and John Swaigen (ed.), Environment on Trial: A Citizen's Guide to Ontario Environmental Law (Toronto: New Press, 1974), pp.30-34.

59. Government of Ontario, Ontario's Future: Trends and Options (TEIGA, March 1976), p.51.

Such a view would include setting out:

a. What the natural environment of Ontario comprises and how it functions; alongside the nature and extent of the basic needs and dependencies the people of this province and subareas of it have with respect to the natural environment (eg, our need for clean air and water, for foodlands, for open space, for energy and for areas capable of handling our wastes, for species diversity, for aesthetic and personal satisfaction, for recreation, for mineral resources, and so on);

b. How the natural environment and human needs in relation to it are changing, and the implications of such changes; and

c. How the provincial and municipal governments, each with defined jurisdictions, may manage these changes effectively, in light of other public goals and programs.

The central issue is not merely to bring environmental concerns into decision-making. It is, first, to understand the existing environmental condition sufficiently that adverse changes in its functioning and in key human dependencies in relation to the natural environment may be effectively managed; and second, to assign clear responsibilities for environmental planning and management to the jurisdictions involved so that each directs the exercise of its powers to matters which are of direct concern to it.

That is not the case now. Provincial interests in relation to municipal planning — not just environmental aspects of planning but planning in general — are defined much the same as the municipal interests themselves; in many respects the Province acts as though it were a municipality (eg, the Ministry of Housing's subdivision approval function, and its detailed involvement in the content of municipal plans). And it emphasizes control over municipal actions rather than intervention at the system-wide level which only the Province has jurisdiction to effect. For example, the Ministry of Housing painstakingly plots municipal consents on maps but its information system is unable to determine whether consents practice is threatening environmentally-sensitive areas, agricultural lands, mineral resources, etc.; the rate of loss of all three of these categories of land is unknown at the provincial level.

Similarly, Official Plans are lodged in the Ministry, and considerable attention will often be given to a specific proposed Plan, but the Ministry does not monitor collective trends in Official Plans (eg, the degree to which they are supporting natural environment concerns; whether Plan amendments are using up the Province's valuable urban open space land, the loss of which has implications for demands made on the Province to build non-urban parks; the extent to which Plans in a given region are compatible in the accommodation or control of the various forms of development to which that region is suited; etc.). Plans are supposed to be reviewed and updated periodically, but Ministry officials do not have a running count of how many plans have been so reviewed (a measure of the relevancy of Official Plans to municipal decision-making). In summary, there is an absence of monitoring and evaluation of what ought to be clear provincial interests concerning the natural environment obviously because the requirement to do so is not evident. And that is because the overall provincial interest with respect to the natural environment is undefined.

In terms of management effectiveness in general, and the natural environment in particular, it would make more sense for the Province to:

a. Define provincial interests in the natural environment. This will be accomplished, however, more as a result of the following initiatives than in advance of them.

b. Introduce explicit natural-environment content into provincial-regional planning frameworks. Such plans and strategies — the Simcoe-Georgian Bay Task Force report makes a promising start in this direction — should identify each region's natural systems/processes[60] and areas, describe and analyze their functioning in relation to key present and projected human activities, evaluate critical changes and other environmental issues, and spell out policy directions to guide provincial actions as well as municipal planning.

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60. At the provincial-regional scale, these systems/processes will aggregate more localized systems/processes but will also encompass larger systems: watersheds, airsheds, energy, resource and material flows of provincial significance, etc.

c. Re-orient its role in municipal planning, from one of detailed vertical involvement in municipal affairs to one of framework provision, and approval of the basic planning instruments (Official Plans, development control bylaws, and municipal environmental review processes), leaving the municipalities to manage their affairs without interference, subject to (d) below; this could include transferring subdivision approval to the municipal level and allowing municipal Councils to amend their own zoning bylaws without reference to the Province.

A recent provincial policy statement indicates the Province favours this general direction. Once provincial-regional plans are in place:

> .....it will cease to be either necessary or appropriate for the province to review municipal planning activities except to ensure that provincial imperatives are observed. In keeping with the government's general policy of delegating responsibility as far as possible to municipal governments, the province will in these cases withdraw from detailed review of municipal planning except to the extent required for this purpose.[61]

d. Monitor municipal planning, decisions and management, with reference to the defined provincial interests — concerning the natural environment, in this case — but reserving the right to intervene selectively when those interests are threatened. Example: if it is determined that it is in the province-wide interest to maintain a certain supply of agriculturally-productive land, and monitoring shows that the supply is being threatened by development pressures, the Province would intervene to limit such pressures in areas of prime agricultural land. Interventions supported by hard facts. Environmental experience clearly shows such interventions to be essential; by the time a crisis is evident — the politically opportune time for intervention — it is often too late. A feasible alternative is selective advance intervention well supported by trends and predictions based on hard facts.

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61. Government of Ontario, ibid., pp.54-55.

e. Regularly conduct a province-wide environmental audit, as a counterpart to similar municipal activities and as a basis for defining/redefining provincial interests in the natural environment. Included would be establishment of province-wide environmental data bases, post-action environmental evaluations, environmental monitoring, special environmental assessments, and an annual benchmark state-of-the-environment report. This could be a valuable step towards countering the high-consumption pro-development bias that now dominates decision-making at all levels and that, ultimately, represents the main deterrent to achieving human activities "in productive harmony" with the natural environment.

f. Accelerate and expand its environmental evaluation process, in four ways. First, ensure that coverage of provincial undertakings by the Environmental Assessment Act is total. This applies especially to housing initiatives which, it has been suggested by the Minister of the Environment, will be exempt from environmental assessment. Housing projects and subdivision applications do not deserve such exemption, considering that they are increasingly likely to seek out inexpensive land such as open space and environmentally-sensitive areas (eg, floodplains). American experience indicates that housing programs can successfully accommodate environmental assessment without creating undue costs or delays, and with significant benefits.[62]

62. According to the General Assistant Secretary of the U.S. Department of Housing and Urban Development. "Environmental concerns are assets...not liabilities...in achieving national housing goals. Environmental issues and processing under The National Environmental Policy Act can protect low- and moderate-income housing...both existing and new housing. Environment reviews required for all federally-funded activities can prevent the location of low- and moderate-income units on sites now undesirable or soon to be unacceptable as a result of other planned public activities." (HUD News, U.S. Department of Housing and Urban Developments, Washington, D.C. 20410, January 17, 1973). Testifying at a recent congressional committee hearing on NEPA, W.H. Butler, Deputy Assistant Secretary for Community Planning and Development, Department of Housing and Urban Development, remarked that "housing projects have been redesigned to preserve aesthetic amenities, to separate houses from highways in order to reduce noise exposure, to reduce erosion, and so on. Other projects were rejected during the environmental impact review. [As well] sophisticated

Second, extend environmental assessment to programs, policies and plans. Prime candidates are the Province's consents policy, UDIRA policies and policy toward protection of hazard lands and other environmental areas, and provincial-regional plans; and later, Official Plans.

Third, organize the Provincial application of environmental assessment to the municipal level so as to minimize direct interference with local planning and decision-making functions. It would be preferable for the Province to identify its interests with respect to conservation and enhancement of the environment, then issue guidelines in the form of performance requirements that allow municipalities to design their own environmental assessment responses as appropriate (this includes the gradual phasing in of environmental assessment, appropriately scaled down, by municipalities with limited capabilities).

And fourth, generate, disseminate and facilitate the sharing of information and knowledge about municipal environmental assessment

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environmental monitoring systems has been established as a result of NEPA process." (J.F. Shane, R. Conrad, and S.B. Pondfield, NEPA In Action: The Impact of the National Environmental Policy Act on Federal Decision-Making, prepared for the Council on Environmental Quality, October 1975, p.11). A study which examines the potential for conflict between housing and environmental protection reports the following finding: "Federal environmental legislation...would result in higher standards for all federally assisted housing by improving drainage, sewage, landscaping and open space; by avoiding poor locations...; by bringing subsidized housing standards in closer conformance to standards required for FNA insured housing." (M.E. Brooks, Housing Equity and Environmental Protection: The Needless Conflict, American Institute of Planners, Washington, D.C., 1976), p.29. Referring to the California Environmental Quality Act and its experience with the cost-impact of environmental assessment on housing: "The total annual statewide cost associated with CEQA is in the range of 50 to 75 million dollars, and is on the order of one-half of one percent of the total project cost, with approximately 50% absorbed by the private sector and 50% by the public sector. Therefore, the cost impact per residential unit is approximately $150...an Environmental Protection Agency study found that impact studies would add no more than one-quarter of one percent to the cost of a $40,000 house" (Robert Hall quoting S.M. Rennie of Environs Corp. in "Local Governments and SEQR" New York State Environment, May 1976, p.2.

as quickly as possible; this is essential but without provincial initiative it is unlikely to happen. A particular immediate need is for some work to be done on the detailed design of procedures, under various typical sets of municipal situations, whereby environmental assessment procedures and municipal planning/management processes may be effectively coordinated. Much costly and time-wasting duplication among municipalities could thereby be avoided.

Each of these improvements depends on provincial initiative. The nature of the natural environment, characterized by complex interdependencies which are poorly understood, demands that each level in the system of governments act to fulfill the level of direction and control in its jurisdiction. In this regard, Municipalities must plan for effective discharge of their responsibilities which, especially in the field of land use control, have a considerable influence on the natural environment. At the same time the Province holds the key to municipal effectiveness (the reverse is true to a much lesser extent). At one extreme the Province can facilitate municipal planning and management by providing the regional framework of provincial development and control policy, seeing to its own affairs and limiting intervention in municipal affairs to cases where trends indicate extra-municipal interests are threatened, and ensuring that municipal units have the necessary resources to fulfill their responsibilities. At the other extreme, the Province can thwart municipal planning and management by failing to provide the required framework, giving more attention to overriding local decision-makers than to conducting its own business, and witholding resources and powers.

Obviously, coordinated provincial-municipal action is at the heart of effective environmental planning and management in Ontario. The key to that partnership, and the next move, is in the hands of the provincial government.

4. SUMMARY OF FINDINGS AND RECOMMENDATIONS

4.1 FINDINGS AND CONCLUSIONS

1. Official Plans are weak in their treatment of natural environment concerns. Natural environment, to most municipalities, means three things: natural hazards, especially flooding; pollution; and aesthetics. Goal statements in Plans reflect this narrow set of concerns, leaving out altogether issues such as energy use and conservation and giving only passing attention to the preservation of agricultural land. Official Plans often fail to relate these ends to feasible means by which they may be achieved. Plans rely heavily on land use control but environmentally-oriented land use categories tend to be left implicit (which, in cases of conflict with other objectives, means environmental considerations are likely to be traded off); also, the range of environmental land use categories is quite limited (the old standbys of open space and hazard lands prevail; environmentally-sensitive areas appear only infrequently). Moreover, Plans give little attention to the specific effects of permitted uses on the natural environment (few require environmental analysis, for example) and only marginal address the inherent conflicts between natural environment and economic/assessment motivated development; rather than providing guidelines for the unavoidable resolution of these conflicts, Plans tend to ignore them or wish away conflict in general statements of planning goals.

   Municipalities pass much of the environmental buck to Conservation Authorities whose mandate is limited with respect to the natural environment. Their focus too is narrow (eg, strong emphasis on flood protection), whether by choice or by necessity (budget constraints); and their operation raises questions of accountability and public involvement. Conservation Authorities can be expected to continue to play a valuable role in the protection and enhancement of the natural environment, but the main impetus for improvement must come from the municipal and provincial governments.

2. Emerging plans of the regional municipalities do not fit the foregoing pattern. They display a considerably higher level of environmental concern, innovation in environmental analysis, and policy formulation related to means. In short, they show considerable promise. But, because none of

the Plans has yet been adopted officially, it remains to be seen whether their environmental provisions will survive the tests of political feasibility and the provincial review process, and how effective the resulting plans will be in protecting environmental resources.

3. Municipal planners demonstrate environmental concerns considerably stronger than and different from those found in Official Plans. Whereas Plans take a narrow view of natural environment, planners appear to recognize a wider range of concerns — water resource management, protection of natural environment features and economic resources, and promotion of air quality — that differ from the environmental priorities indicated by Official Plans. Obviously, Plans lag rather than lead. The environmental movement peaked six years ago, time enough for plans to catch up; yet even the more recent, post-Earth-Day Plans rarely exhibit more concern than their earlier counterparts.

4. Planners cite a number of roadblocks to more environmentally-oriented municipal planning. Heading the list are: inadequate municipal powers to acquire and protect environmentally-sensitive areas; conflicts and lack of cooperation among jurisdictions; failure of the Province to provide the necessary provincial-regional planning frameworks; provincial insensitivity to local solutions to environmental problems; and the usual shortages of time, staff, data and money. Not often mentioned but nonetheless prominent in the list of barriers to environmental planning is the primitive state of the art; the level of knowledge and the available methods for such planning, especially those relating planning and ecology, are weak and uncertain. Little research is being done to correct this deficiency.

5. The problems go deeper than this, however, to the nature of the planning process itself (both municipal and provincial-regional). Pro-development and urban biases lead to natural environment (and countryside generally) being viewed as "unused" "vacant" "raw" land and a reservoir for development. The planning process, therefore, tends to filter out environmental concerns. And, input-oriented, it tends to rely strongly on the Plan for criteria to judge the validity of development proposals. Given inevitable

shortcomings in the inputs (data, perceived goals/problems), and planners' analytic and predictive capabilities, especially where complex environmental systems enter the planning agenda, this reliance on the Plan is both unrealistic and hazardous. Needed instead is an approach that looks for the best possible environmental inputs but also subjects the outputs of planning (plans themselves, policies, programs, projects) to environmental evaluation before commitment to action. Such evaluation would consider both the objectives of the Plan and the reality of the current community condition. To bring about such an environmental planning approach would require a three-part innovation at the municipal level.

6. The first improvement would be in the environmental content of Official Plans. It would remove some of the roadblocks cited earlier and, in particular, create new opportunities for the identification, acquisition, control and management of environmentally-sensitive areas.

7. Environmental assessment offers a means by which to introduce the second element, pre-action evaluation, to the municipal planning process. Imminent proclamation of the Environmental Assessment Act offers the opportunity. Six years of American experience with environmental assessment have demonstrated that it has considerable potential as a means of forcing environmental considerations into a higher profile in public and private decision-making, of reforming planning and decision processes, and of minimizing short and longer term adverse environmental effects of public and private actions. Environmental assessment, as well, has shown itself to be feasible administratively at all government levels.

Environmental assessment and municipal planning in Ontario, however, appear to be heading in divergent directions. Competition often appears to overshadow cooperation among the relevant provincial Ministries. And the apparently-parallel processes of review and approval for municipal planning and environmental assessment (as proposed) could result in unacceptable delays and costs and, ultimately, damage to the credibility of both processes.

It is essential that municipal planning and environmental assessment be made complementary and mutually reinforcing, and that eventually they be integrated into a single component of municipal management. Both would benefit thereby. Environmental assessment would bring to planning a necessary means for adding the evaluative component it lacks, specifically for assessing the environmental effects of proposed actions; it would also provide a vehicle for improving environmentally the various functional planning processes (transportation, sewer and water, recreation, housing, etc.) and for bringing these more effectively under central municipal control. On the other hand, long-range comprehensive planning would compensate for environmental assessment's short-range and project-by-project emphasis.

8. The third element, needed to realize the full potential of environmental assessment in planning and to complement the use of more environmentally-oriented Plans, is an "environmental audit". This would involve: the establishment of environmental data bases, probably at the regional municipality or county scale; the carrying out of post-action evaluations to determine actual effects of implemented plans, policies, programs, and projects, and to identify unforeseen and cumulative effects that warrant corrective action; regular monitoring of the changing environmental quality of the municipality, and changing perceptions of that quality, focusing on activities, environments, effects and affected groups of concern; and an annual state-of-the-environment report as a benchmark against which to measure change and as a means for public information and education.

9. The three elements — environmentally-oriented Official Plan, environmental evaluation and environmental audit — would form the basis for introducing a new process of municipal environmental management. Such a process is essential; for the real concern is not so much with the quality of plans but rather with the quality of subsequent actions and their effects. And that is the business of municipal management of which planning is but one part.

The impact approach applicable to environmental issues has equal validity to other aspects of municipal management — eg, impacts of proposed actions

on municipal finance, and municipal services, social impacts, energy impacts, and so on. Most of these fields are rapidly developing at the present time; models exist elsewhere for their application here.

10. The Province holds the key to bringing about the environmental-management innovation. But there is a lot of improvement needed at the provincial end first. The Planning Act presently gives scant attention to environmental concerns. Nor are Ministry of Housing policies and review procedures with respect to municipal planning environmentally oriented; environmental matters are left to the Ministries of the Environment and Natural Resources but they perform only an advisory role in municipal plan review. Official Plans are supposed to relate to provincial and regional planning strategies but these deal only superficially with the natural environment and provide no framework within which to conduct municipal environmental planning. Jurisdiction over environmental matters is fragmented and ambiguous. And finally, the Province lacks an explicit holistic identification of province-wide interests with respect to the natural environment systems and trends in their quality and functioning, the dependence of people of this province on certain man/environment relationships for their wellbeing, and how they value the natural environment — all as background to determining how the provincial government and municipalities, each with defined jurisdictions, may effectively plan and manage their affairs with respect to environmental matters.

    Coordinated provincial-municipal action is at the heart of effective environmental planning and management. The Province holds the key to such action, and the responsibility to initiate the needed improvements.

4.2 RECOMMENDATIONS

RECOMMENDATION 1: Role of the Official Plan. The Province should indicate clearly to municipalities that the role of the Official Plan is limited to guiding Council decisions with respect to (a) the spatial land-use aspects of the municipality's functions, and (b) the exercise of its control over physical development. Natural environment considerations should be explicitly contained in all Official Plans (Recommendation 2) as part of the larger social and environmental framework upon which such Plans are based; but achieving the

desired level of environmental quality as a result of initiatives within the process of municipal management, including but not limited to Official Plans. An environmentally-oriented approach to municipal management in Ontario would comprise environmentally-oriented Official Plans and functional plans utilizing environmental data bases; the designation of environmentally-sensitive areas; the incorporation of environmental assessment to evaluate the effects of proposed actions before they are taken; new forms of development control; and an ongoing "environmental audit" to improve each municipality's understanding of its existing environmental condition, monitor environmental effects, and maintain a watch over their cumulative consequences.

RECOMMENDATION 2: Environmental Content of Official Plans. The Planning Act should be amended to require, or the Minister should require by regulation, that all Official Plans shall explicitly give consideration to and include provisions related to the natural environment, including:

a. The municipality's definition of "the natural environment"; a full description of the natural-environment systems and processes in the municipality and their relationships to those in adjoining municipalities; and an evaluation of the existing and projected condition of the natural environment with and without Plan proposals.

b. Explicit statements of policy concerning the conservation, preservation, use and enhancement of the natural environment with respect to those matters over which the municipality (i) has direct jurisdiction and control, (ii) shares control with other municipalities or with intermunicipal agencies such as Conservation Authorities, and (iii) actively supports, in fields of provincial or federal jurisdiction.

c. Environmental policies explicitly related to feasible means available or proposed for achieving the Plan's stated environmental objectives.

d. Environmental Protection Areas identified along with the criteria for their identification; and an indication of how the municipality, using new legislation (see Recommendation 4), intends

to acquire the development rights affected, control the use of such Areas, and otherwise manage their environmental functioning.

RECOMMENDATION 3: Environmental Data Bases. The Province should initiate, encourage and support financially and technically the building-up of environmental data bases at the municipal level. Regional municipalities, Counties and Conservation Authorities are appropriate levels at which to create and administer environmental data bases. Data collected should be related directly to the functioning of natural-environment/human-activity systems in each "region", and to the decision capability of municipal governments.

RECOMMENDATION 4: Environmental Protection Areas. Special legislation regarding Environmental Protection Areas, based on the four-part definition suggested in Section 3, should be drafted for consideration and comment by municipalities, provincial agencies, Conservation Authorities and interested groups and individuals. The legislation should include general criteria for identification of Environmental Protection Areas, the basis for their management (acquisition, protection and control, and ongoing functioning) and related powers and processes for use by municipalities with Official Plans. The legislation should also clarify existing jurisdiction and control between municipalities and Conservation Authorities with respect to floodplains; it should provide new municipal powers to prevent development in key Environmental Protection Areas such as those headwater and aquifer recharge zones of vital concern to the wellbeing of the people of the municipality; and it should allow municipalities to exercise interim controls to prevent destruction of environmental resources in areas intended for Environmental Protection Area designation.

RECOMMENDATION 5: New Ways to Control Land Use and Human Activities. The Ministry of Housing and the Ministry of the Environment should sponsor an investigation to identify feasible new methods of regulating land use and human activities in direct relation to the capacities of natural systems and processes to accommodate development; of particular promise is "impact zoning". Ways should also be sought for municipalities with Official Plans to protect environmental resources (eg, trees, natural habitat) on privately-owned lands earmarked for urban development.

RECOMMENDATION 6: Environmental Evaluation. Environmental evaluation, based on an integration of environmental assessment into the processes of municipal planning and management, should be acknowledged as a vital component of the adaptation of those processes to natural environment considerations. Environmental assessment and municipal planning must be made complementary and not allowed to become competitive. Specific study, which should be initiated by the Planning Act Review Committee, is urgently required to design and test guidelines and procedures, under a range of typical municipal circumstances, for coordinating environmental assessment, municipal planning and development control.

RECOMMENDATION 7: Local Control of Environmental Assessment. Regulations currently being prepared for application of the Environmental Assessment Act to municipalities should accept as a principle that the Province will minimize its intervention into municipal planning and management in this regard. Municipalities should be permitted flexibility in the manner of incorporating environmental assessment into their operations, in conformity with provincial guidelines and with the Minister of the Environment approving each municipality's general approach. The Working Group preparing the regulations should give special attention to deriving methods for coordinating the hearing, appeal and approval processes under the Environmental Assessment Act and the Planning Act.

RECOMMENDATION 8: Environmental Assessment and Housing. When the Environmental Assessment Act is proclaimed with respect to provincial undertakings, housing should not be exempt. Instead, attention should be given to overcoming the potential problem of additional delay in processing development applications. The Ministries of Housing and the Environment should give priority to assisting municipalities to establish processes and procedures that coordinate municipal development control and municipal environmental assessment as they relate to housing (Recommendation 6).

RECOMMENDATION 9: Class Studies. Current work being done by the Ministry of the Environment on class studies for environmental assessment purposes should be expanded to include classes of municipal activities affecting the natural environment and classes of environmentally-sensitive areas.

RECOMMENDATION 10: Environmental Assessment Information. The Ministry of the Environment should establish a program to generate, disseminate and facilitate the sharing of information and knowledge with respect to environmental assessment at the municipal level in Ontario.

RECOMMENDATION 11: Environmental Audit. By amending either the Planning Act or the Municipal Act, the Province should require each municipality (or group of adjoining municipalities) to undertake, with provincial support, the preparation of an "environmental audit" as a further essential element in the proposed environmentally-oriented municipal planning and management process. An environmental audit would include a municipal environmental data base (Recommendation 3); post-action environmental evaluation; special-purpose evaluations concerning secondary and cumulative effects; and an annual state-of-the-environment report. Municipal environmental audits would be coordinated with similar audits carried out by the Province at the regional and provincial levels.

RECOMMENDATION 12: Provincial-Municipal Relationships. In its relationship to municipalities with respect to planning, the Province should re-orient its approach, based on a clear identification of Province-wide interests concerning the natural environment. The Province should express these interests in its provincial-regional planning frameworks and policies, and require municipal conformance in the preparation of Official Plans. The Province should delegate to municipalities those functions of direct concern at the local level (eg, subdivision control, zoning bylaw amendment), and it should redirect much of its effort toward monitoring of the results of municipal actions, with selective provincial intervention only when the Province's interests appear to be threatened.

RECOMMENDATION 13: Review of Plans and Related Measures. In the short run the Ministry of the Environment, the Ministry of Natural Resources and the Ministry of Housing should prepare and publish a single set of environmental guidelines for the review of Official Plans, their amendment and related measures (including consents) under the Planning Act. Use of these guidelines should be adopted as a policy of the Ministry of Housing which carries

primary responsibilities for such review and which would request the advice of the other two Ministries with regard to detailed interpretation of the application of the guidelines to specific cases. In addition, in relation to municipal actions affecting the natural environment, the Minister should make it mandatory for municipalities to consult Conservation Authorities, in the early stages of Official Plan preparation, plan amendment, the preparation of development control measures, and the administration of these measures including relevant consents and minor variances.

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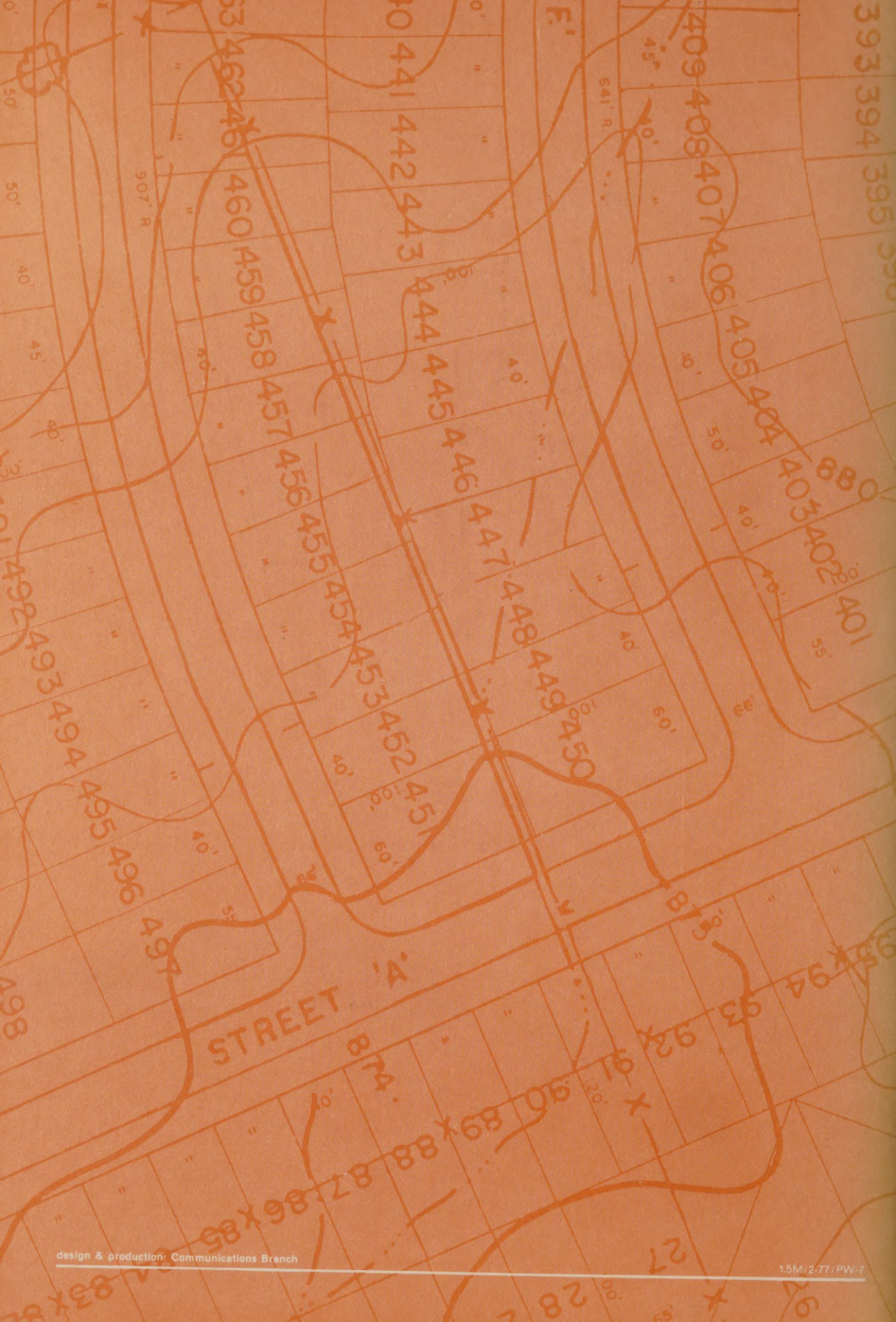

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